5985-357-13

TECHNICAL MANUAL

OPERATOR'S, ORGANIZATIONAL, AND DIRECT SUPPORT MAINTENANCE MANUAL FOR

ANTENNA GROUP OE-254/GRC

This copy is a reprint which includes current pages from Changes 1 and 2.

HEADQUARTERS, DEPARTMENT OF THE ARMY
AUGUST 1978

Vol. II:

READEX FICHE best copy available

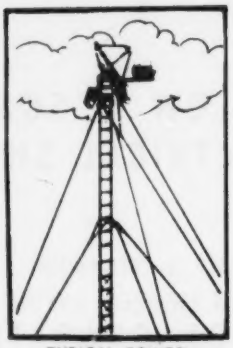
WARNINGS

1. When the radio equipment is transmitting, dangerous RF voltages may exist at the radiating elements of the AS−3166/GRC (fig. 1−1) and at the connectors of the Cable Assembly, RF CG−1889A/U. Therefore do not touch these parts during radio operation.
2. Do not touch the antenna system during lightning and thunderstorms.
3. When using trichloroethane for cleaning, provide ventilation. DO NOT USE NEAR AN OPEN FLAME. DO NOT TAKE INTERNALLY.

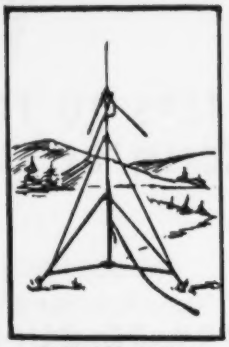
FIXED OPERATION WITH LONG RANGE ANTENNAS

WARNING

TELESCOPING ANTENNA MAST



TYPICAL TOWER



EXTENDED RANGE ANTENNA

DOUBLET ANTENNA

NEVER ERECT THESE LONG RANGE ANTENNAS DIRECTLY UNDER POWER LINES.

IF YOU MUST ERECT THESE LONG RANGE ANTENNAS NEAR POWERLINES, POWERLINE POLES OR TOWERS, OR BUILDINGS WITH OVERHEAD POWERLINE CONNECTIONS, NEVER PUT THE ANTENNA CLOSER THAN TWO TIMES THE ANTENNA HEIGHT FROM THE BASE OF THE POWERLINE, POLE, TOWER OR BUILDINGS.

NEVER ATTEMPT TO ERECT ANY LONG RANGE ANTENNA WITHOUT A FULL TEAM.

BEFORE ERECTING ANY LONG RANGE ANTENNA, INSPECT ALL THE PARTS MAKING UP THE ANTENNA KIT. DO NOT ERECT THE ANTENNA IF ANY PARTS ARE MISSING OR DAMAGED.

DO AS MUCH OF THE ASSEMBLY WORK AS POSSIBLE ON THE GROUND.

WHEN ERECTING THE ANTENNA, ALLOW ONLY TEAM PERSONNEL IN THE ERECTION AREA.

MAKE SURE THAT THE AREA FOR THE ANCHORS IS FIRM. IF THE GROUND IS MARSHY OR SANDY, GET SPECIFIC INSTRUCTIONS FROM YOUR CREW CHIEF OR SUPERVISOR ON HOW TO REINFORCE THE ANCHORS.

WHEN SELECTING LOCATIONS FOR ANCHORS, AVOID TRAVELED AREAS AND ROADS. IF YOU CANNOT AVOID THESE AREAS, GET SPECIFIC INSTRUCTIONS FROM YOUR SUPERVISOR AS TO WHAT CLEARANCE YOUR GUY WIRES AND ROPES MUST HAVE OVER THE TRAVELED AREAS AND ROAD.

CLEARLY MARK ALL GUY WIRES AND ROPES WITH THE WARNING FLAGS OR SIGNS SUPPLIED BY YOUR UNIT. IN AN EMERGENCY, USE STRIPS OF WHITE CLOTH AS WARNING STREAMERS.

IF YOU SUSPECT THAT POWERLINES HAVE MADE ACCIDENTAL CONTACT WITH YOUR ANTENNA, STOP OPERATING, ROPE OFF THE ANTENNA AREA, AND NOTIFY YOUR SUPERIORS.

IF THE WEATHER IN YOUR AREA CAN CAUSE ICE TO FORM ON YOUR LONG RANGE ANTENNA AND ITS GUY WIRES AND ROPES, ADD EXTRA GUYS TO SUPPORT THE SYSTEM. ROPE OFF THE AREA AND POST IT WITH WARNING SIGNS LIKE "BEWARE OF FALLING ICE."

DO NOT TRY TO ERECT ANY ANTENNA DURING AN ELECTRICAL STORM.

KEEP A SHARP EYE ON YOUR ANCHORS AND GUYS. CHECK THEM DAILY AND IMMEDIATELY BEFORE AND AFTER BAD WEATHER.

5 SAFETY STEPS TO FOLLOW IF SOMEONE IS THE VICTIM OF ELECTRICAL SHOCK

1. DO NOT TRY TO PULL OR GRAB THE INDIVIDUAL
2. IF POSSIBLE , TURN OFF THE ELECTRICAL POWER
3. IF YOU CANNOT TURN OFF THE ELECTRICAL POWER, PULL, PUSH, OR LIFT THE PERSON TO SAFETY USING A WOODEN POLE OR A ROPE OR SOME OTHER INSULATING MATERIAL
4. SEND FOR HELP AS SOON AS POSSIBLE
5. AFTER THE INJURED PERSON IS FREE OF CONTACT WITH THE SOURCE OF ELECTRICAL SHOCK, MOVE THE PERSON A SHORT DISTANCE AWAY AND IMMEDIATELY START ARTIFICIAL RESUSCITATION

TM 11-5985-357-13

C 2

CHANGE
NO. 2

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC, *30 July 1982*

Operator's, Organizational, and Direct Support Maintenance Manual ANTENNA GROUP OE-254/GRC (NSN 5985-01-063-1574)

TM 11-5985-357-13, 16 August 1978, is changed as follows:

1. New or changed material is indicated by a vertical bar in the margin of the page.
2. Added or revised illustrations are indicated by a vertical bar in front of the figure caption.
3. Remove and insert pages as indicated below.

Remove pages	*Insert pages*
i through iii	i through iii
1-0 and 1-4	1-0 and 1-4
2-3 through 2-4	2-3 through 2-4
2-5 and 2-10	2-5 through 2-10, and 2-10.1, 2-10.2
2-13 and 2-14	2-13 and 2-14
4-1 and 4-2	4-1 and 4-2
B-1 through B-3	B-1 through B-8

4. File this change in front of the publication for reference purposes.

By Order of the Secretary of the Army:

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General, United States Army
Chief of Staff

Official:

ROBERT M. JOYCE
Brigadier General, United States Army
The Adjutant General

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NO. 11-5985-357-13

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC *16 August 1978*

OPERATOR'S, ORGANIZATIONAL, AND DIRECT SUPPORT MAINTENANCE MANUAL FOR

ANTENNA GROUP OE-254/GRC

(NSN 5985-01-063-1574)

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in back of this manual direct to: Commander, US Army Communications-Electronics Command and Fort Monmouth, ATTN: DRSEL-ME-MQ, Fort Monmouth, New Jersey 07703.
In either case, a reply will be furnished direct to you.

TABLE OF CONTENTS

			Paragraph	Page
CHAPTER	1.	INTRODUCTION		
SECTION	I.	General		
		Scope	1-1	1-1
		Indexes of publications	1-2	1-1
		Maintenance forms, records, and reports	1-3	1-1
		Reporting equipment improvement recommendations (EIR)	1-4	1 1
		Administrative storage	1-5	1-1
		Destruction of Army Electronics Materiel	1-6	1-1
SECTION	II.	Description and data		
		Purpose and use	1-7	1-1
		Differences between models	1-7.1	1-2
		Description	1-8	1-2
		System application	1-9	1-3
		Components of end item	1-10	1-3
		Tabulated data	1-11	1-3
CHAPTER	2.	INSTALLATION AND OPERATING INSTRUCTIONS		
		Service upon receipt of equipment	2-1	2-1
		Systems planning	2-2	2-1
		Positioning baseplate and guy stakes	2-3	2-1
		Assembling antenna equipment	2-4	2-2
		Erection using two persons	2-5	2-4
		Erection using one person	2-6	2-5
		Connection to radio set	2-7	2-7
		Moisture proofing mated rf connectors	2-8	2-8
		Lowering antenna	2-9	2-8
		Antenna stowage/transit	2-10	2-9
		Operation under unusual conditions	2-11	2-10
		Checking installed OE-254/GRC using Test Set, RF Power AN/URM-182 or AN/URM-182A	2-12	2-14

TABLE OF CONTENTS—Continued

			Paragraph	Page
		Applying WARNING label	2-13	2-14
CHAPTER	3.	OPERATOR/CREW MAINTENANCE		
		Scope of operator's maintenance	3-1	3-1
		Materials required	3-2	3-1
		Operator/crew preventive maintenance	3-3	3-1
		Preventive maintenance checks and services periods	3-4	3-1
		Cleaning	3-5	3-2
CHAPTER	4.	ORGANIZATIONAL MAINTENANCE		
		Scope of organizational maintenance	4-1	4-1
		Test equipment, tools and materials required	4-2	4-1
		Organizational preventive maintenance checks and services	4-3	4-1
		Touchup painting	4-4	4-1
		Organizational maintenance troubleshooting procedures	4-5	4-2
		Organizational troubleshooting	4-6	4-2
		Repairs	4-7	4-2
CHAPTER	5.	FUNCTIONING OF EQUIPMENT		
		General	5-1	5-1
		Balun assembly function	5-2	5-1
CHAPTER	6.	DIRECT SUPPORT MAINTENANCE INSTRUCTIONS		
		Scope of direct support maintenance	6-1	6-1
		Tools, test equipment and materials required	6-2	6-1
		Direct support troubleshooting	6-3	6-1
		Feedcone disassembly and assembly procedures	6-4	6-4
		Balun disassembly and assembly procedures	6-5	6-4
		Final assembly inspection	6-6	6-4
APPENDIX	A.	REFERENCES	.....	A-1
	B.	COMPONENTS OF END ITEM LIST		
Section	I.	Introduction	.....	B-1
	II.	Integral components of end item	.....	B-2
	III.	Basic issue items	.....	B-3
APPENDIX	C.	ADDITIONAL AUTHORIZATION LIST (Not applicable)		
	D.	MAINTENANCE ALLOCATION		
Section	I.	Introduction	.....	D-1
	II.	Maintenance allocation chart for Antenna Group OE-254/GRC	.....	D-3
	III.	Tool and test equipment requirement for Antenna Group OE-254/GRC	.....	D-4
	IV.	Remarks	.....	D-5
APPENDIX	E.	EXPENDABLE SUPPLIES AND MATERIALS LIST		
Section	I.	Introduction	.....	E-1
	II.	Expendable supplies and materials list	.....	E-2

LIST OF ILLUSTRATIONS

Figure	*Title*	*Page*
1-1	Antenna Group OE-254/GRC erected	1-0
1-2	Antenna Group OE-254/GRC components and running spare parts	1-2
1-2.1	Antenna Group OE-254/GRC components and running spare parts Contract DAAK80-80-C-0277	1-
1-2.2	Mast and base assembly, AB-1244/GRC	1-
1-2.3	Mast and base assembly, AB-1244A/GRC	1-
1-3	System application	1-3
1-4	Antenna Group OE-254/GRC radiation pattern	1-4
1-5	Antenna AS-3166/GRC	1-5
2-0	WARNING INSTRUCTIONS—to be followed when erecting or lowering antennas	1-6
2-1	Positioning guy stakes	2-2
2-2	Driving guy stake	2-2
2-3	Assembling mast	2-2
2-4	Attachment of guy hooks to guy plate	2-2
2-5	Guy attachment to ground anchor	2-2
2-6	Secured guy snubber	2-3
2-7	Removing guy from snubber lock	2-3
2-6	Secured guy snubber	2-3
2-7	Removing guy from snubber lock	2-3
2-8	Pulling guy rope taut	2-3
2-9	Connecting insulating extension to feedcone assembly	2-3
2-10	Assembling antenna elements	2-3
2-11	Captivating feedcone assembly connector cap	2-4
2-12	Secured connector cap	2-4

LIST OF ILLUSTRATIONS—Continued

Figure	Title	Page
2-13	Strain clamp open	2-4
2-14	Strain clamp closed	2-4
2-15	Erecting Antenna Group OE-254/GRC with two persons	2-5
2-16	Positioning OE-254/GRC for one person erection (sheet 1 of 2)	2-6
2-16	Positioning OE-254/GRC for one person erection (sheet 2 of 2)	2-7
2-17	Connections of CG-1889B/U to AS-3166/GRC and radio	2-8
2-18	Preparing mated connectors for weatherproofing	2-8
2-19	Weatherproofing mated connectors	2-8
2-20	Ground anchor/pivot clevis alignment	2-9
2-20.1	Ground anchor/pivot clevis alignment. Contract DAAK80-80-C-0277	2-10
2-21	Transit bag with parts installed	2-11
2-22	Typical substitute ground anchors	2-12
2-23	Assembling OE-254/GRC for use on M577 Command Post	2-13
2-24	OE-254/GRC installed on top of M577 Commmand Post	2-14
2-25	Test setup for radio and OE-254/GRC with AN/URM-182 or AN/URM-182A	2-15
2-26	WARNING label	5-1
5-1	Balun assembly diagram	6-1
6-1	Balun assembly, internal view	6-2
6-2	Removing balun housing from feedcon subassembly	6-3
6-3	Exposing wire leads	6-4
6-4	Unsoldering wire leads	6-5
6-5	Removing balun subassembly	6-5
6-6	Assembling UG-680/U to balun assembly	6-6
6-7	Cabling procedure	

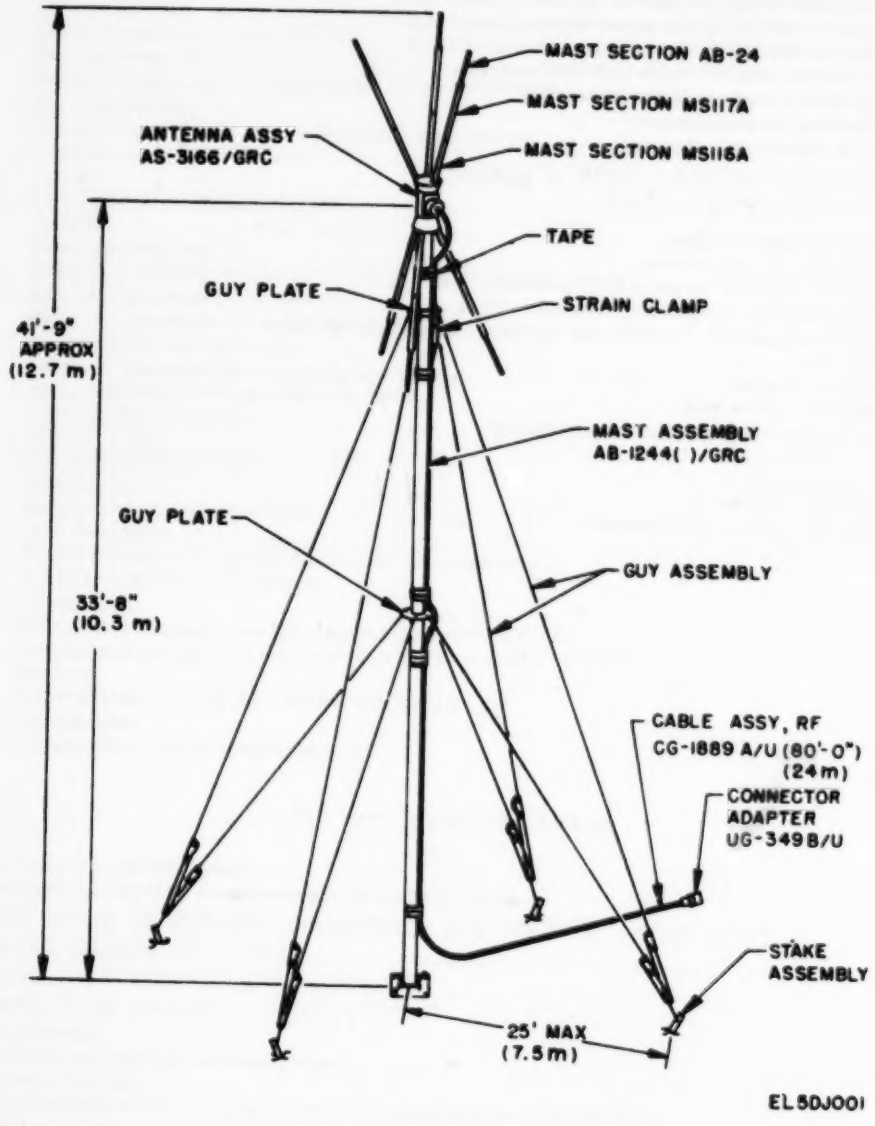


Figure 1-1. Antenna group OE-254/GRC erected.

CHAPTER 1

INTRODUCTION

Section I. GENERAL

1-1. Scope

a. This manual describes Antenna Group OE-254/GRC (fig. 1-1) and provides instruction for installation, operation, and maintenance. It includes instructions for operation under usual and unusual conditions, cleaning and inspection of the equipment, and replacement of parts available to the repair technician.

b. The maintenance allocation chart appears in appendix D.

1-2. Index of Technical Publications

Refer to the latest issue of DA Pam 310-4 to determine whether there are new editions, changes, or additional publications pertaining to the equipment.

1-3. Maintenance Forms, Records, and Reports

a. Reports of Maintenance and Unsatisfactory Equipment. Department of the Army forms and procedures used for equipment maintenance will be those prescribed by TM 38-750, The Army Maintenance Management System (Army).

b. Reporting of Packaging and Handling Deficiencies. Fill out and forward SF 364 (Report of Discrepancy (ROD)) as prescribed in AR 735-11-2/DLAR 4140.55/NAVMATINST 4355.73/AFR 400-54/MCO 4430.3E.

c. Discrepancy in Shipment Report (DISREP) (SF 361). Fill out and forward Discrepancy in Shipment Report (DISREP) (SF 361) as prescribed in AR 55-38/NAVSUPINST 4610.33B/AFR 75-18/MCO 4610.19C/DLAR 4500.15.

1-4. Reporting Equipment Improvements Recommendations (EIR)

If your equipment needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design. Tell us why a procedure is hard to perform. Put it on a SF 368 (Quality Deficiency Report). Mail it to Commander, US Army Communications-Electronics Command, and Fort Monmouth, ATTN: DRSEL-ME-MQ, Fort Monmouth, NJ 07703. We'll send you a reply.

1-5. Administrative Storage

Administrative storage of equipment issued to and used by Army activities will have preventive maintenance performed in accordance with the PMCS charts before storing. The requirements apply whether the antenna is stored with an associated radio or stored alone. When removing the equipment from administrative storage, the PMCS should be performed to assure operational readiness. Before and after storage, clean the unit (para 3-5) and paint bare metal parts (para 4-4). Disassembly and repacking of equipment for shipment or limited storage are covered in paragraphs 2-10, 6-4, and 6-5.

1-6. Destruction of Army Electronics Materiel

Destruction of Army electronics materiel to prevent enemy use shall be in accordance with TM 750-244-2.

Section II. DESCRIPTION AND DATA

1-7. Purpose and Use

a. Antenna Group OE-254/GRC (fig. 1-1) is an omnidirectional, biconical antenna designed for broadband operation without field adjustment from 30 to 88 MHz, up to 350 watts.

b. The OE-254/GRC is intended for use with the following radios: Radio Sets AN/VRC-12, AN/VRC-43 through AN/VRC-49 (TM 11-5820-401-10-1, TM 11-5820-401-10-2) AN/VRC-53, AN/VRC-64, AN/GRC-125, and AN/GRC-160 (TM 11-5820-498-12); and with the following man-pack radios: Radio Sets AN/PRC-25 (TM 11-5820-398-12) and AN/PRC-77 (TM 11-5820-667-12); and with similar radios operating in the 30— to 88— MHz band.

1-7.1 Differences Between Models

a. This manual covers two models of the OE-254/GRC which have differences in the mast base, stakes and transit bag. The following table identifies these differences. All other components are identical.

Item	*OE-254/GRC*	*OE-254/GRC*
Mast	AB-1244/GRC	AB-1244A/GRC
Bag, Transit	SM-D-944752	A
Stake	SM-C-659376 Rev C	SM-C-659376 Rev D

[a]Basic version OE-254/GRC

[b]OE-254/GRC supplied under Contract DAAK80-80-C-0277.

b. Contract number DAAK80-80-C-0277 is used in this manual to identify paragraphs and illustrations that apply to this configuration.

1-8. Description

(fig. 1-1, 1-2, and 1-2.1)

The antenna consists of Antenna AS-3166/GRC, Mast AB-1244/GRC, and Cable Assembly, Radio Frequency CG-1889B/U (80 ft); all parts are stowed in a transit bag. The feedcone assembly mounts the six antenna elements and the balun assembly and provides for mechanical connection to the mast by use of an insulating extension. The balun asembly is connected to the radio set by Cable Assembly, Radio Frequency CG-1889B/U. Mast AB-1244/GRC is used to elevate the antenna above ground and is held in a vertical position by eight guy ropes. The equipment is designed for hand or vehicular transportation. When disassembled, it is packed in a nylon fabric roll bag 42 inches long and 39 inches in circumference.

a. Antenna AS-3166/GRC. The AS-3166/GRC is a broadband, omnidirectional, biconical antenna. The three upward and three downward extended radials simulate two cones which are electrically above ground making the overall antenna a balanced antenna. The extended radials project at an angle of 30 degrees from true vertical. The nominal impedance of a biconical antenna is 200 ohms requiring the use of a balun transformer to match this balanced impedance to the 50-ohm unbalanced (one side grounded) output impedance of the radio to which the AS-3166/GRC is connected. The impedance transformation is accomplished on the AS-3166/GRC through the 4 to 1 balun (balanced to unbalanced) transformer attached between the two cones. Radial cone angle and radial length have been adjusted on the AS-3166/GRC to provide an acceptable impedance match over the frequency range from 30 to 88 MHz. This feature provides a broadband antenna that requires no adjustments in the elements over the operating frequency once erected.

b. Antenna Elements. The extended radials consist of one each of mast sections AB-24, MS-117A and MS-116A. The mast sections are copper plated, painted tubes of high-stgrength steel which can be screwed together.

c. Mast AB-1244/GRC. The mast consists of five lower and five upper mast sections, a lower adapter assembly, an upper adapter assembly and a mast and base assembly rising to a height of approximately 30 feet 9 inches (14.5 meters) (fig. 1-1). Each tubular mast section is keyed and has a male and female end which permits the sections to be fitted together. The lower adapter assembly mates the lower and upper mast sections into a single unit. The upper adapter assembly is the interface between the AB-1244/GRC and the insulating extension of the AS-3166/GRC.

d. Mast and Base Assembly AB-1244/GRC (fig. 1-2.2). This assembly consists of a short tubular supporting section attached to a stake by a yoke and clevis pin. The lowermost mast section is placed over this tubular section. The yoke and clevis pin arrangement is supplied in two pieces and allows the mast assembly to be lowered to the ground by pivoting about the stake.

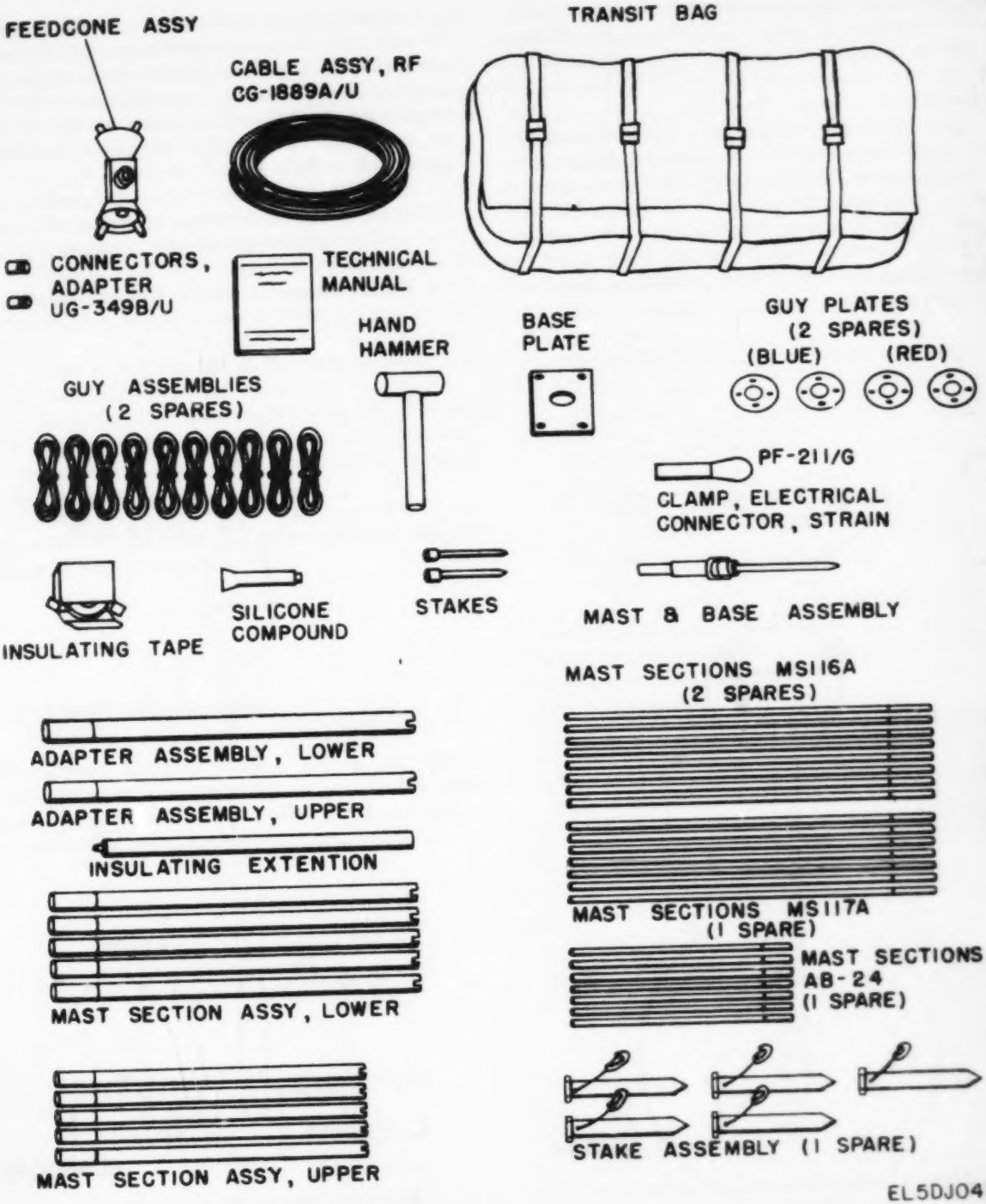


Figure 1-2.1 Antenna Group OE-254/GRC, components and running spare parts. (Contract DAAK80-80-C-0277.

e. Mast and Base Assembly AB-1244A/GRC, Contract DAAK80-80-C-0277 (fig. 1-2.3). This improved design prevents damage to the assembly during installation. It is functionally identical to the AB-1244/GRC mast and base assembly but is not interchangeable.

f. Base Plate. The baseplate is a fabricated metal plate used to distribute the load of the mast and base assembly. The plate is fixed to the ground by the use of two driven stakes which secure the plate from movement. The baseplate is keyed for proper orientation of the mast assembly.

g. Guy Assemblies, Guy Plates, Guy Snubbers, and Guy Stakes. These items hold the mast assembly in the vertical position (fig. 1-1).

h. Guy Plate. A guy plate, color coded blue, is slid onto the male end of the lower adapter assembly before it is assembled to the upper mast sections. A second guy plate, color coded red, is slid onto the male end of the upper adapter assembly before being mated with the insulating extension of the AS-3166/GRC. The upper and lower guy ropes attach to these plates.

i. Cable Assembly, Radio Frequency CG-1889B/U. The CG-1889B/U is an 80-foot length of 50 ohm, solid-dielectric, coaxial radiofrequency cable terminated in male Plugs UG-21/U.

j. Connector Adpater UG-349B/U. The UG-349B/U is re-

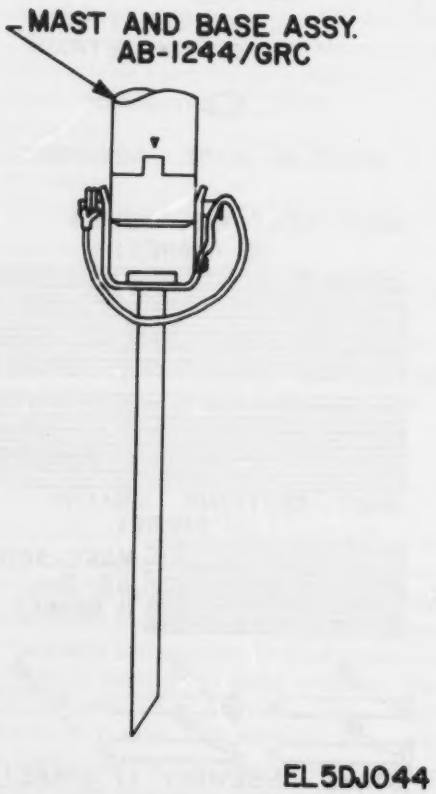


Figure 1-2.2 Mast and base assembly AB-1244/GRC.

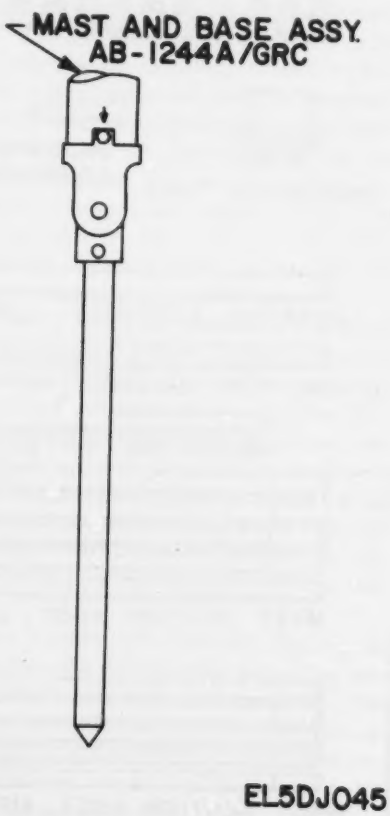


Figure 1-2.3 Mast and base assembly AB-1244A, (Contract DAAK80-80-C-0277).

quired to adapt the CG-1889B/U to radios equipped with type BNC antenna connectors.

k. Clamp, Electrical Conductor, Strain PF-211/G. A strain relief clamp attaches the CG-1889B/U to the upper guy plate to eliminate strain on the connector caused by the weight of the dangling cable.

l. Anticorrosion Silicone Compound. The silicone compound (item 2, app E) is intended for application to the threaded areas of the mast sections, before assembly, to deter seizing with prolonged exposure to weather.

m. Electrical Tape. The tape is intended for dressing (lashing) the CG-1889B/U to the mast at points in its downward run, and for moisture proofing mated rf connectors.

n. Hammer. A 2½ pound hammer is provided for use during installation of the AB-1244/GRC.

o. Transit Bag. The transit bag is a nylon fabric roll bag with pockets and straps to hold the antenna components for transportation in the field. An adjustable shoulder strap is provided for easy carrying.

p. Reel RL-28. Four of these reels are provided for the guy ropes. Of the eight guy ropes provided, two are wound on each of four reels.

1-9. System Application

(fig. 1-3)

This antenna system is complete and can be used for transmission or reception when connected to a radio which operates in the 30- to 88-MHz frequency range up to approximately 350 watts.

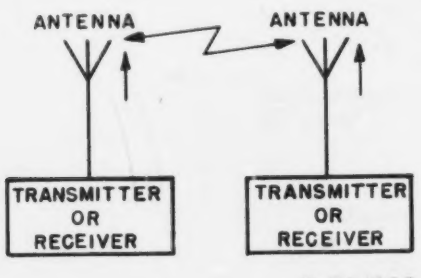


Figure 1-3. System application.

1-10. Components of End Item

Refer to appendix B for components of antenna group OE-254/GRC.

1-11. Tabulated Data

Frequency range ..... 30 to 88 MHz.
Rf power capability ..... 350 watts nominal.
Distance range (nominal) when used with radio sets (on high power) listed in paragraph 1-*7b*, except the AN/PRC series:
Between two Antenna
Group OE-254/GRC
Average terrain ..... 36 miles (57.9 km).
Difficult terrain ..... 30 miles (48.3 km).
Between Antenna
Group OE-254/GRC and vehicular whip antenna:
Average terrain ..... 30 miles (48.3 km).
Difficult terrain ..... 25 miles (40.3 km).
Distance range (nominal) using
Radio Sets AN/PRC:
Between two Antenna
Groups
OE-254/GRC ..... 12 miles (19.3 km).
Between whip antenna and
Antenna
OE-254/GRC ..... 8 miles (12.9 km).
Antenna erection time (2 persons) ..... 15 minutes.
Erected height (nominal) ..... 41 ft, 9 in. (12.7 meters).
Input impedance to radio (nominal) ..... 50 ohms.
Type of radiation
pattern ..... Nondirectional (fig. 1-4).
Voltage-standing-wave ratio (vswr)
30 to 35 MHz ..... 3.5:1 max.
35 to 88 MHz ..... 3.0:1 max.
Weight (packed) ..... 43 lb 8 oz (19.73 kg).

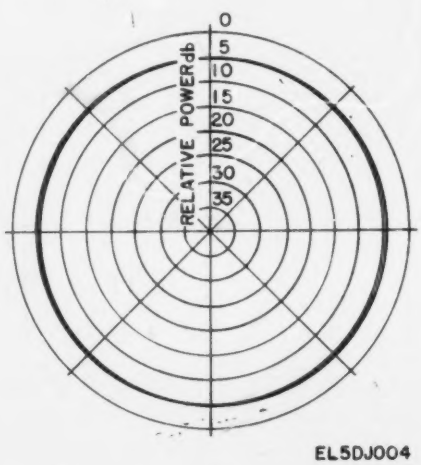


Figure 1-4. Antenna Group OE-254/GRC radiation pattern.

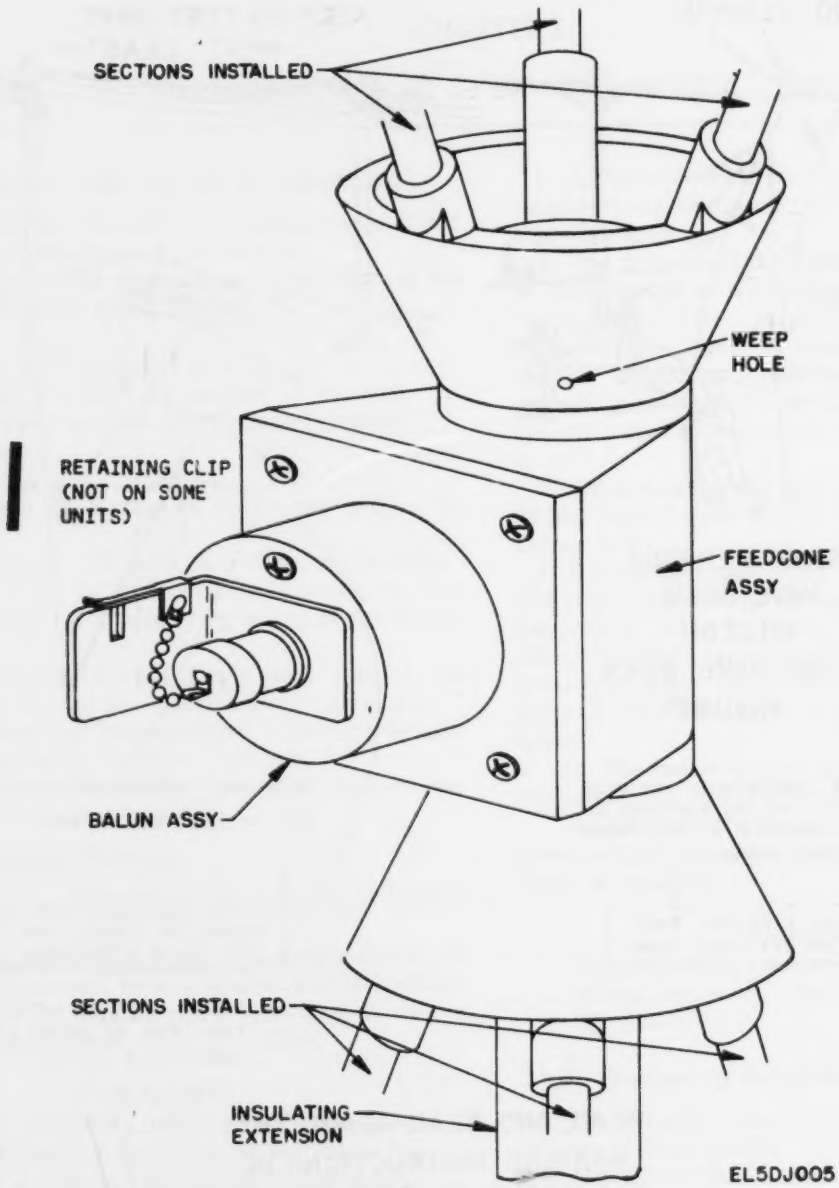
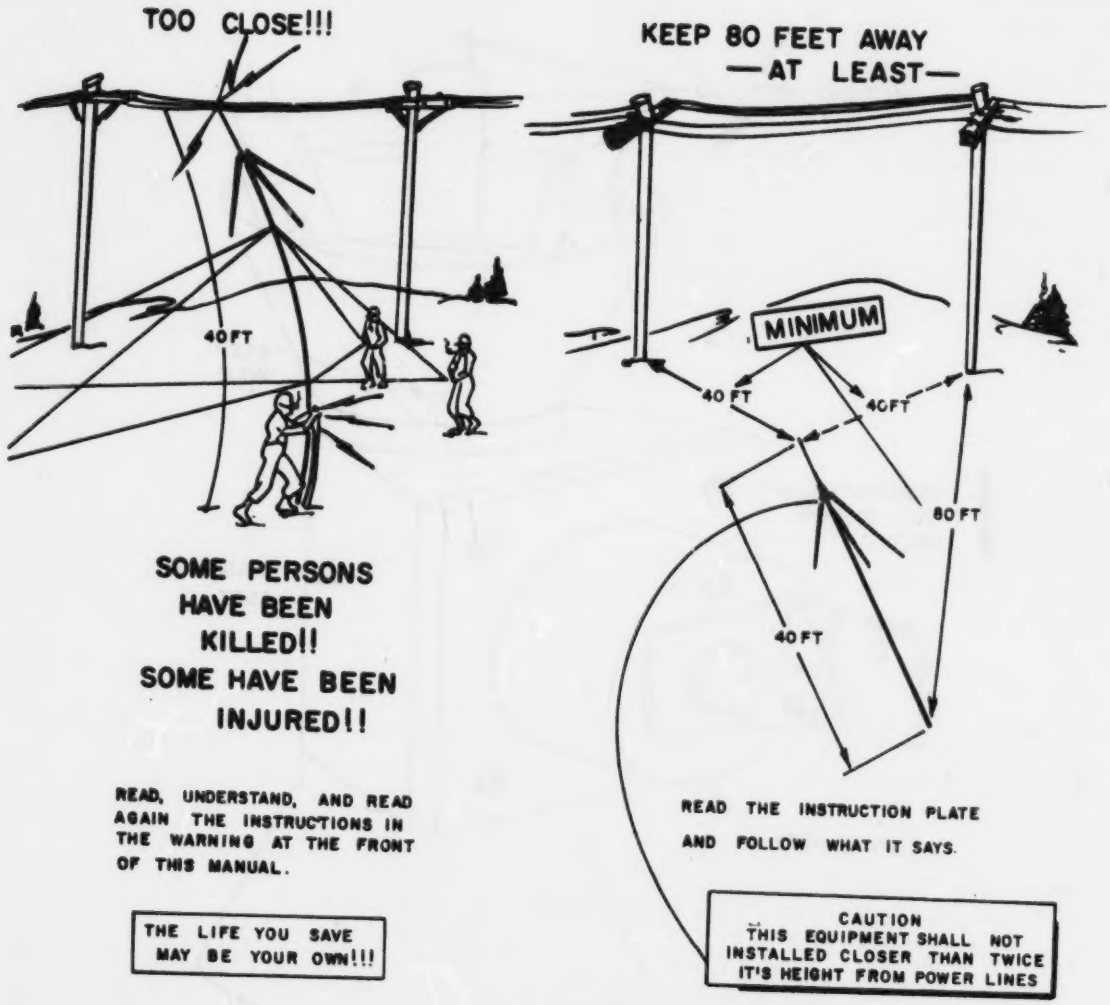


Figure 1-5. Antenna AS-3166/GRC.



READ, AND READ AGAIN, THE WARNING INSTRUCTIONS IN THE FRONT OF THIS MANUAL AND THE HEALTH INSTRUCTIONS FOR ELECTRICAL SHOCK

EL5DT036

Figure 2-0. WARNING INSTRUCTIONS—to be followed when erecting or lowering antennas.

CHAPTER 2

INSTALLATION AND OPERATING INSTRUCTIONS

2-1. Service Upon Receipt of Equipment

a. Unpacking. Follow the procedures outlined below when unpacking the equipment.

(1) Remove the staples from the end flaps of the corrugated carton with a pry bar.

CAUTION

Do not pry into the interior of the case with a pry bar; this may damage the equipment.

(2) Open the corrugated carton and remove the contents.

(3) Place the contents on a clean, dry surface.

(4) Unwrap the components by opening the four outside and one inside securing straps of the transit bag.

b. Checking Unpacked Equipment. Inspect the equipment for damage incurred during shipment. If the equipment has been damaged, refer to paragraph 1-3 for applicable forms and records.

c. Inventory. Check the equipment against the packing list, or appendix B.

2-2. Systems Planning

This antenna is omnidirectional; therefore, located as follows:

a. As far as possible from, and never adjacent to, high tension powerlines and telephone lines. Installation shall be a distance equal to at least twice the height of the antenna from powerlines.

WARNING

Never erect the antenna where powerlines could possibly sag or break and come in contact with the antenna or transmission line. See other warnings on inside front cover.

b. In the clear-away from trees, buildings and obstructions; preferably on the highest available land. Obstructions such as hills or manmade objects such as steel towers and steel/concrete structures tend to block or reduce transmission/reception in the direction in which they are located.

c. As far as possible from other types of transmitting/receiving equipment; to avoid mutual coupling and interference.

d. The installation site should be free and clear of all obstructions within a 25-foot radius (7.62 meters) of the mast and base assembly. The antenna should be placed so it can be reached easily during all weather conditions. Initial assembly of the antenna system in the horizontal plane will require an assembly area approximately 8 feet wide and 42 feet long.

e. When selecting the antenna site, be sure that the 80-foot coaxial cable will reach from the antenna to the radio set.

f. If the antenna assembly is not to be raised to its full height (fig. 1-1), the lower and upper adapter assemblies must be used. For example, if the AS-3166/GRC (fig. 1-5) is to be installed after the lower guy plate (blue), the following procedures, adapted to instructions in paragraph 2-4, shall apply:

(1) The radius distance to the stakes shall be approximately 25 feet maximum (7.62 meters).

(2) Assemble the upper adapter assembly to the lower adapter assembly after the lower guy plate (blue) is installed.

WARNING

Don helmet liner, safety glasses and gloves before assembly and erection of the OE-254/GRC.

2-3. Positioning Baseplate and Guy Stakes

a. Place the baseplate, with the ribs up, where the antenna is to be erected.

b. Drive the stake of the mast and base assembly through the center hole of the baseplate with the hammer.

c. Drive the two pin stakes through opposite corner holes of the baseplate.

d. Locate the position of the four guy stake assemblies at a maximum radius of 25 feet (7.62 meters) from the center of the baseplate and a 90 degree angle between stakes (fig. 2-1). The baseplate ribs should be in alignment with two opposite stake

assemblies. The guy stake positioning radius can be approximated by using the five lower mast sections, the lower adapter assembly and three upper mast sections fitted together to mark the guy stake location.

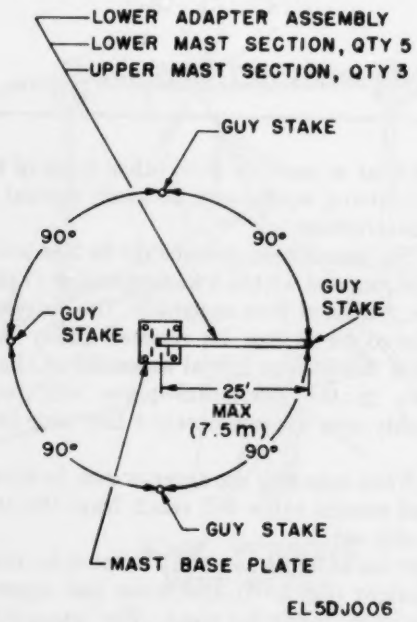


Figure 2-1. Positioning on guy stakes.

e. Drive the four guy stakes at a 60-degree angle into the earth facing away from the mast (fig. 2-2).

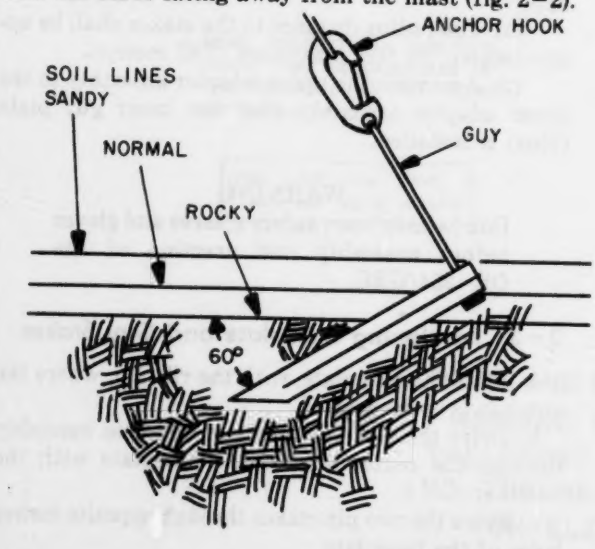


Figure 2-2. Driving guy stake.

2-4. Assembling Antenna Equipment

a. Assemble five lower mast sections by inserting the keyed male ends into the keyed female ends (fig. 2-3). Place the bottom section of the assembly over the movable portion of the mast and base assembly.

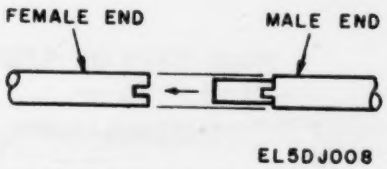


Figure 2-3. Assembling mast.

b. Slide a guy plate, color coded blue, onto the male end of the lower adapter assembly. Assemble the lower adapter assembly to the five lower mast sections.

c. Assemble five upper mast sections and join them with the six already assembled.

d. Slide a guy plate, color coded red, onto the male end of the upper adapter assembly. Assemble the upper adapter assembly to the mast.

e. Turn the guy plates so that one hole of each is uppermost.

f. Attach the guy hooks, color coded blue, of the four lower guy ropes to the holes of the lower guy plate (fig. 2-4).

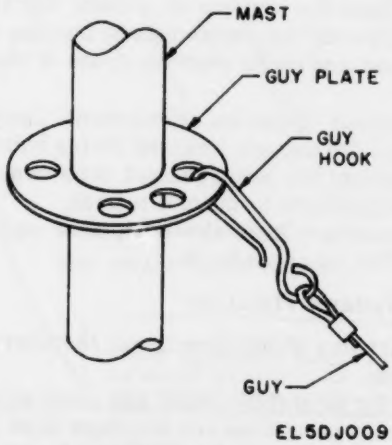


Figure 2-4. Attachment of guy hooks to guy plate.

g. Extend the guy ropes to the anchor assemblies and attach the free end guy loop of the guy snubber to the anchor hooks (fig. 2-5). When attached this way, each guy rope can be pulled as taut as desired by lengthening the guy loop.

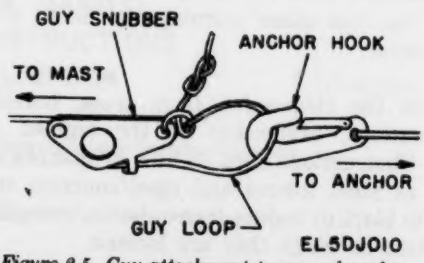


Figure 2-5. Guy attachment to ground anchor.

h. Attach the upper four guys, color coded red, to the red guy plate and anchor assemblies in a similar manner (*g* above).

i. Pull the four side guy ropes, two upper and two lower, taut and secure them (fig. 2-6). The method for pulling guy lines taut is as follows:

(1) Remove guy from snubber lock (fig. 2-7).

(2) Pull snubber along guy in direction towards mast (fig. 2-8).

(3) Secure guy by looping guy under snubber (fig. 2-6).

j. Lay the two bottom (lower and upper) guy ropes along one set of taut side guy ropes and adjust to the same length. Attach the bottom guy ropes to the back guy stake (fig. 2-15).

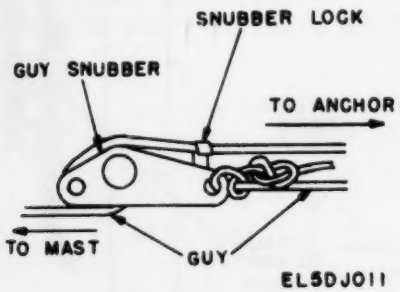


Figure 2-6. Secure guy snubber.

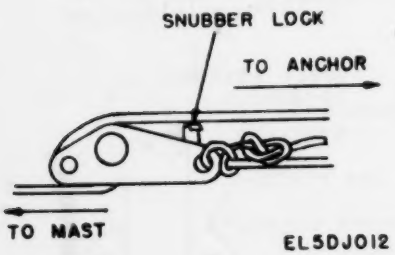


Figure 2-7. Removing guy from snubber lock.

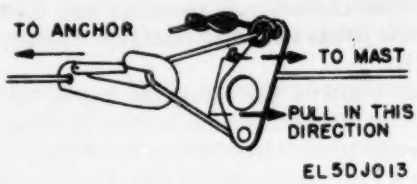


Figure 2-8. Pulling guy rope taut.

k. Erect the antenna mast using the procedures in paragraph 2-5 or 2-6. After the guy ropes are properly taut, lower the antenna (para 2-9) and install the feedcone assembly with the antenna elements (*l* below) and erect the mast again.

l. Installing Feedcone Assembly and Antenna Elements.

(1) Coat the insulating extension screw thread with anticorrosion compound (silicone) (item 2, app. E). Screw the insulating extension into the feedcone structure (fig. 2-9) and assemble to the mast.

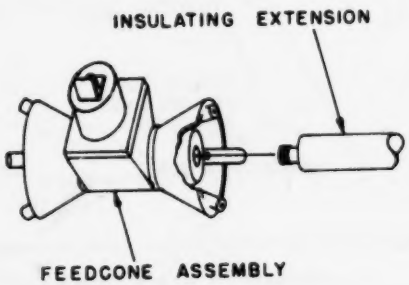


Figure 2-9. Connecting insulating extension to feedcone assembly.

(2) Coat the screw threads on the AB-24, MS-117A, and MS-116A with anticorrosion compound. Assemble the antenna elements by screwing Mast Sections AB-24, MS-117A, and MS-116A (fig. 2-10) (1 each: AB-24, MS-117A, and MS-116A in each section).

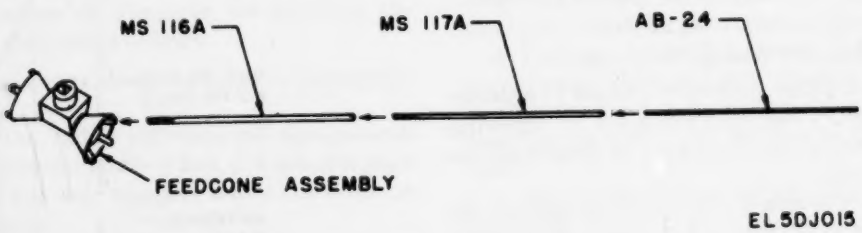


Figure 2-10. Assembling antenna elements.

(3) Assemble the antenna elements to the feedcone assembly by screwing the male ends on MS-116A into the female sockets located on the feedcone assembly (fig. 2-10).

NOTE

Additional weatherproofing of the antenna assembly may be made at this time by wiping excess anticorrosion compound

from the antenna assembly and dressing the joints with electrical tape (item 1, app E).

(4) Unscrew the connector cap of the feedcone assembly connector and secure the cap to the connector protective bracket by sliding the clip on the cap under the retaining clip (if provided) until it is captivated in the slot (fig. 2-11). When secured the cap will be captivated as shown in figure 2-12).

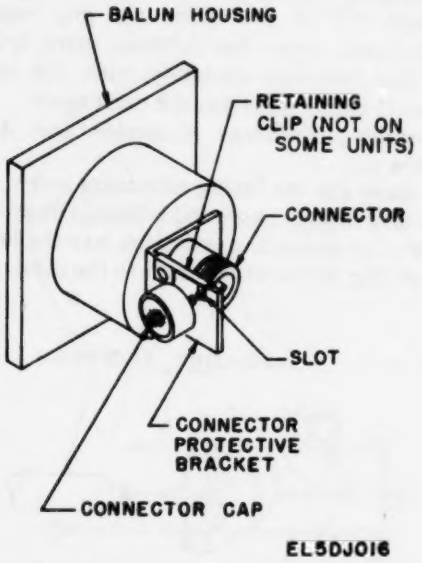


Figure 2-11. Captivating feedcone assembly connector

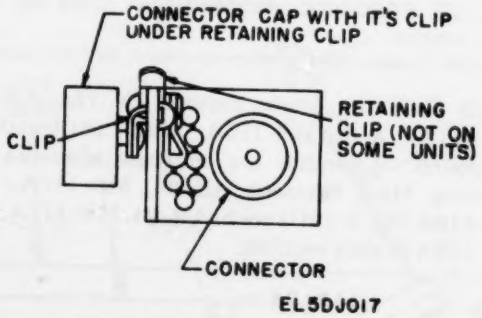


Figure 2-12. Secured connector cap.

(5) Connect Cable Assembly, Radio Frequency CG-1889B/U to the feedcone assembly by screwing the cable connector into the connector located on the feedcone assembly.

(6) Relieve the strain of the fittings and on the cable connector by attaching the strain relief clamp through the fifth hole of the upper guy plate and attaching it to the CG-1889B/U (fig. 2-13 and 2-14) Leave a loop in the cable to prevent strain. Additional strain relief is provided by taping the cable assembly, using electrical tape (item 1, app E) to the mast at a point just below the feedcone assembly base and at points every 5 from there to the bottom of the mast (fig. 1-1).

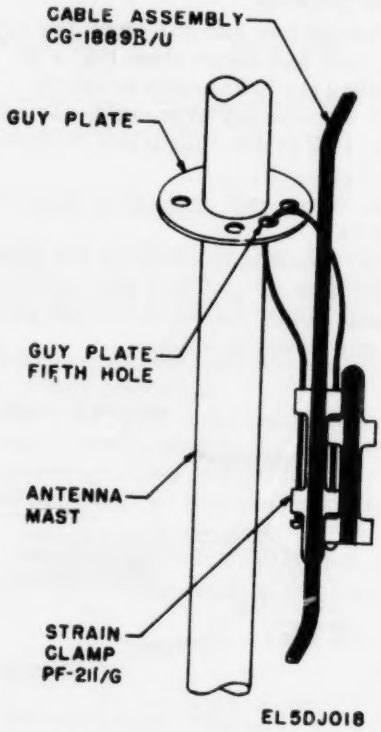


Figure 2-13. Strain clamp open.

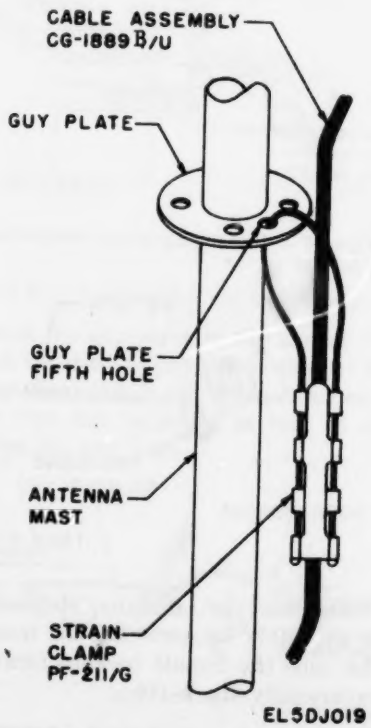


Figure 2-14. Strain clamp closed.

WARNING

WATCH OUT FOR POWERLINE. Observe the warnings on the inside of the front cover and in figure 2-0.

2-5. Erection Using Two Persons

a. Two persons are needed to raise the mast. If only one person is available, use the procedures given in paragraph 2-6. The first person stands near the mast baseplate and in line with the far guy stake. The second person stands at the top of the mast. The first person bows the top end of the mast slightly by pulling the free guy ropes taut. At the same time, the second person, having raised the top end of the mast up as high as possible, walks toward the base plate, pushing the mast upward (with a slight bow) while the first person walks backward toward the far guy stake, pulling the mast slowly and firmly erect (fig. 2-15). During the walk up, keep the mast slightly bowed by controlling both guys.

b. When the mast is in vertical position, adjust the tighten all the guy ropes evenly. Check for vertical position by comparing the mast with a building, pole, etc. If the guy ropes are too taut, the mast may bow during hot weather (due to expansion of the metal).

NOTE

Leave a slight slack in each guy ropes, to allow for expansion and contraction of the mast and guy ropes. Check the tautness in the morning and during the day. Experience with the temperature conditions in the area will determine how taut the guy ropes should be.

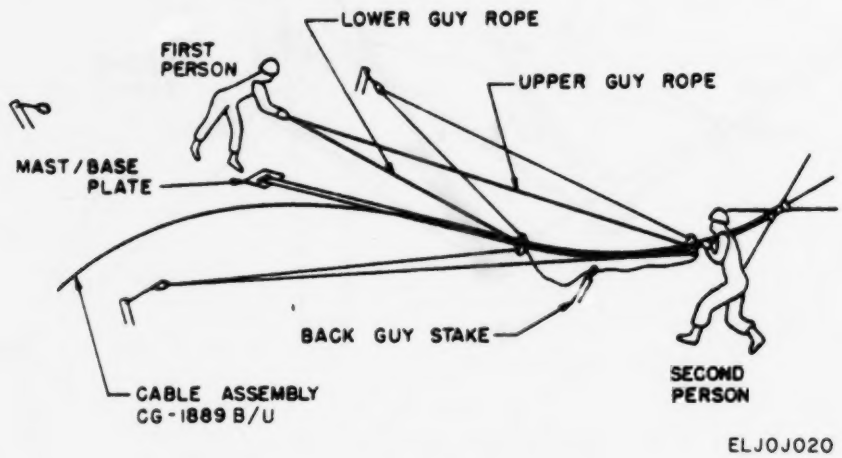


Figure 2-15. Erecting Antenna Group OE-254/GRC using two persons.

2-6. Erection Using One Person (fig. 2-16)

If only one person is available for erecting the OE-254/GRC, proceed as follows:

a. Follow the assembly procedures in paragraph 2-4.

b. To raise the radial elements off the ground, obtain a box approximately 4 feet (1.2 meters) high and locate the box as a support under the antenna feedcone assembly.

c. Move the mast 90 degrees clockwise from the first stake (fig. 2-16 (sheet 1)). Adjust the tautness of the guy ropes to the first stake.

d. Move the mast 90 degrees counterclockwise from the second stake (fig. 2-16 (sheet 2)). Adjust the tautness of the guy ropes to the second stake.

e. Position yourself between the first and third guy stakes. Take the guy ropes in hand and walk toward the third stake while pulling the mast up and keeping the guy ropes leading to the second stake taut.

f. Adjust the tighten all guy ropes (fig. 2-6, 2-7, and 2-8).

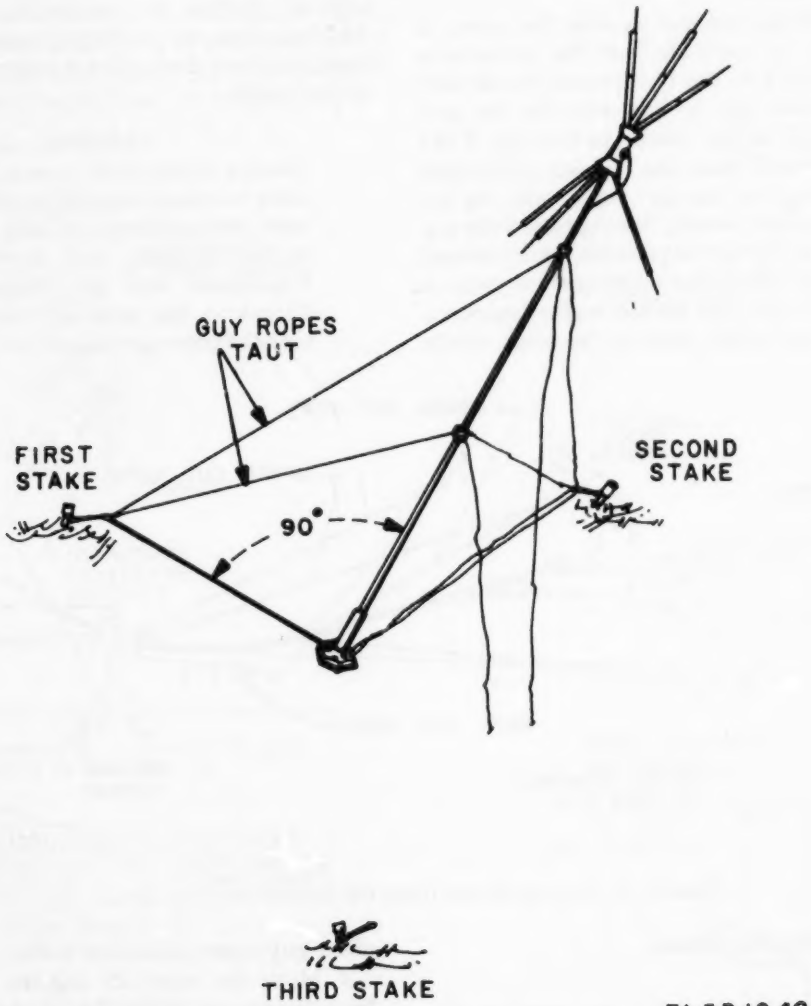


Figure 2-16 Positioning OE-254/GRC for one person erection (sheet 1 of 2)

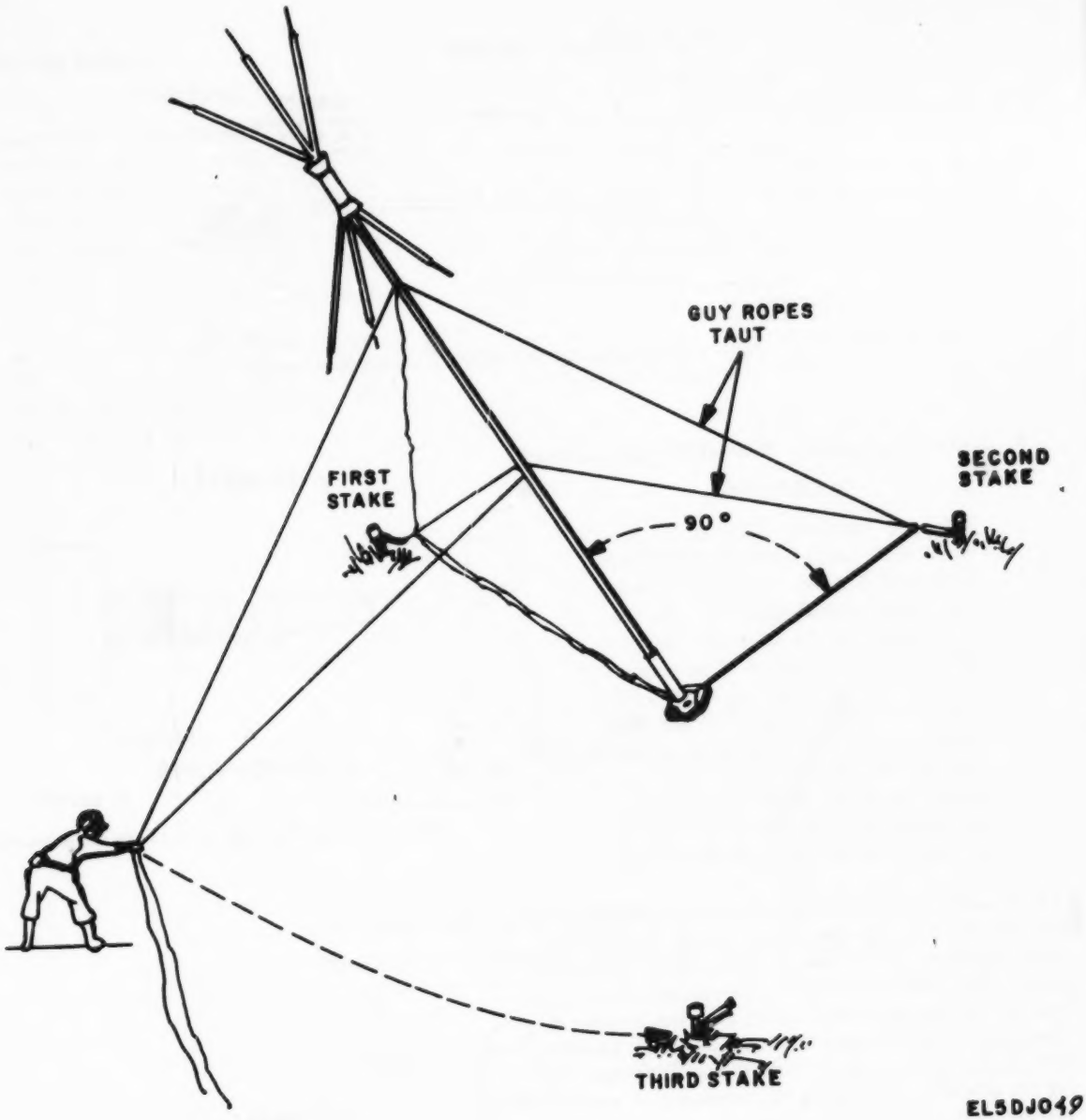


Figure 2-16. Positioning OE-254/GRC for one person erection (sheet 2 of 2).

2-7. Connection to Radio Set
(fig. 2-17)

CAUTION

Make sure the radio set is turned off while making connections from the radio to the OE-254/GRC.

a. Connect the CG-1889B/U connector to the connector of the radio set. Use Connector Adapter UG-349B/U as the interface between the CG-1889B/U connector and radios equipped with a type BNC antenna connector.

b. To protect the cable from vehicles and persons walking in the area, lay boards on the ground on both sides of the CG-1889B/U. The boards should be thicker than the cable.

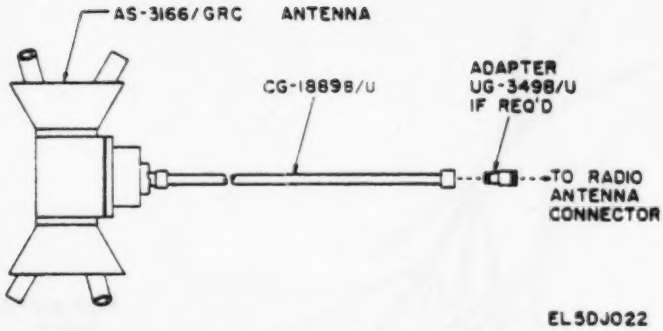


Figure 2-17. Connections of CG-1889B/U to AS-3166/GRC and radio.

2-8. Moistureproofing Mated Rf Connectors

WARNING

Adequate ventilation should be provided while using TRICHLOROTRIFLUORETHANE. Prolonged breathing of vapor should be avoided. The solvent should not be used near heat or open flame; the products of decomposition are toxic and irritating. Since TRICHLOROTRIFLUORETHANE dissolves natural oils, prolonged contact with skin should be avoided. When necessary, use gloves which the solvent cannot penetrate. If the solvent is taken internally, consult a physician immediately.

a. A method for moistureproofing mated rf connectors is to use the electrical tape (item 1 app E) over the connector junction. As in case of anticorrosion protection (para 2-4*l*)d, taping should be renewed periodically. If both the silicone grease and taping are used, remove excess grease from the outside of the connector assembly with trichlorotrifluorethane (item 3, appx E) before taping the assembly. Use taping for permanent or semipermanent outdoor installation where uncoupling is not anticipated more frequently than approximately once each three months or longer.

b. Tape coaxial cable junctions as follows:

(1) Assembly connectors to the cable.

(2) Tightly apply electrical tape on cable immediately behind the connector to provide a smooth contour between cable and connector (fig. 2-18).

(3) Tightly warp several layers of tape with a 50 percent overlap over the built-up junction. Use a minimum of four layers. The completely taped covering should extend beyond the connector for a distance equal to 8 to 12 times the diameter of the cable and have a smooth and symmetrical contour (fig. 2-19).

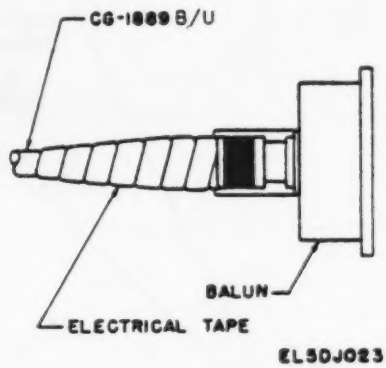


Figure 2-18. Preparing mated connectors for weatherproofing.

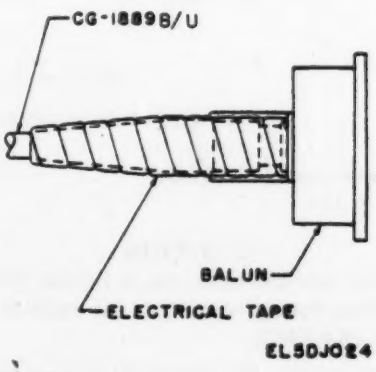


Figure 2-19. Weatherproofing mated connectors.

2-9. Lowering Antenna

WARNING

- BEFORE LOWERING THE ANTENNA, READ THE "LONG RANGE ANTENNA WARNING" IN THE FRONT OF THIS MANUAL.
- IF THERE ARE POWER LINES NEARBY, LOWER THE ANTENNA IN THE DIRECTION OPPOSITE THE POWER LINES.
- CLEAR THE AREA OF PERSONNEL, EQUIPMENT, AND VEHICLES BEFORE STARTING TO LOWER THE ANTENNA.

a. Obtain a support to keep the radial elements off the ground as the mast is lowered.

b. To lower the antenna, remove one set of guy ropes (upper and lower) which are aligned with the pivot clevis on the mast base section (fig. 2-20, 2-20.1) and lower the antenna to the ground by letting it pivot about the mast and base assembly.

CAUTION

Allow only a slight bow in the mast during the lowering operation.

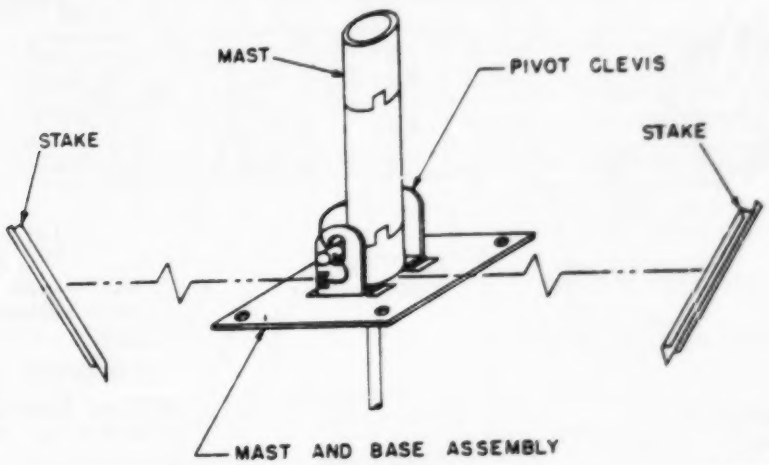


Figure 2-20. Ground anchor/pivot clevis alignment.

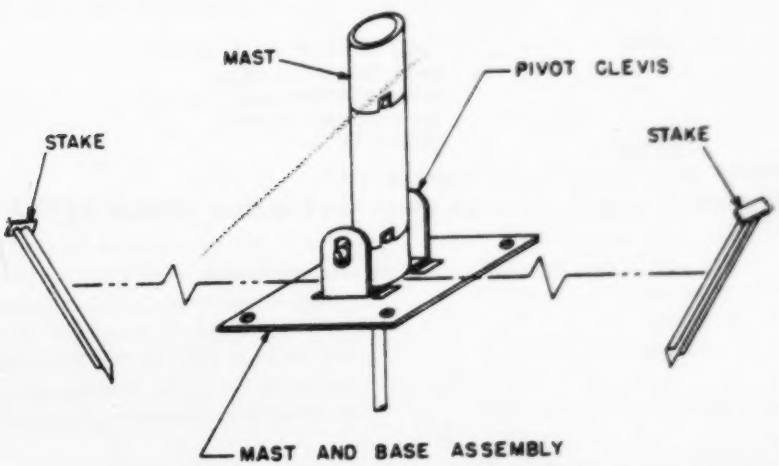
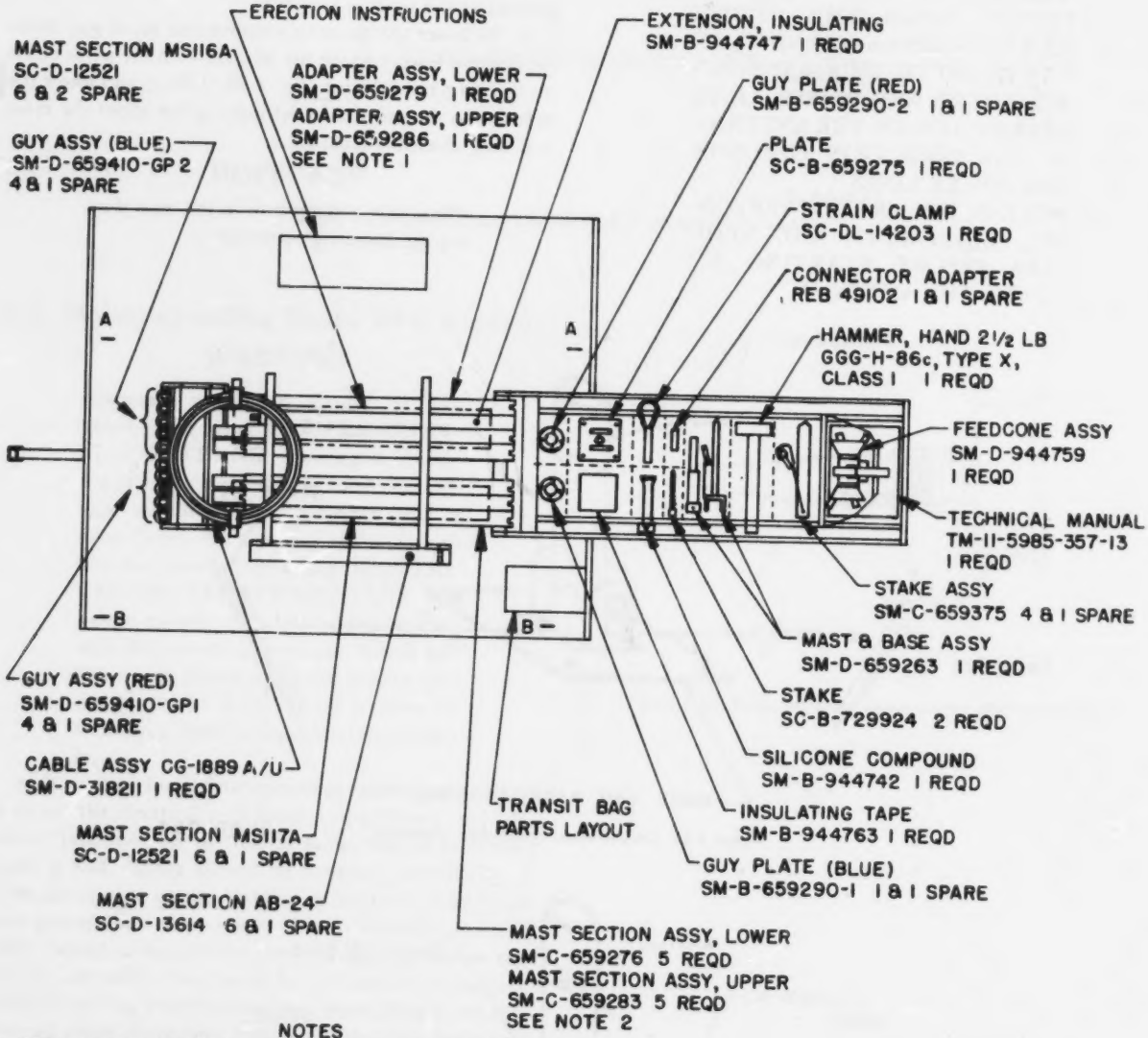


Figure 2-20.1. Ground anchor/pivot clevis alignment, Contract DAAK80-80-C-0277.



NOTES

1. STOW UPPER ADAPTER ASSY INSIDE LOWER ADAPTER ASSY.
2. STOW UPPER MAST SECTION ASSEMBLIES INSIDE LOWER MAST SECTION ASSEMBLIES.

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Figure 2-21. Transit bag with parts installed.

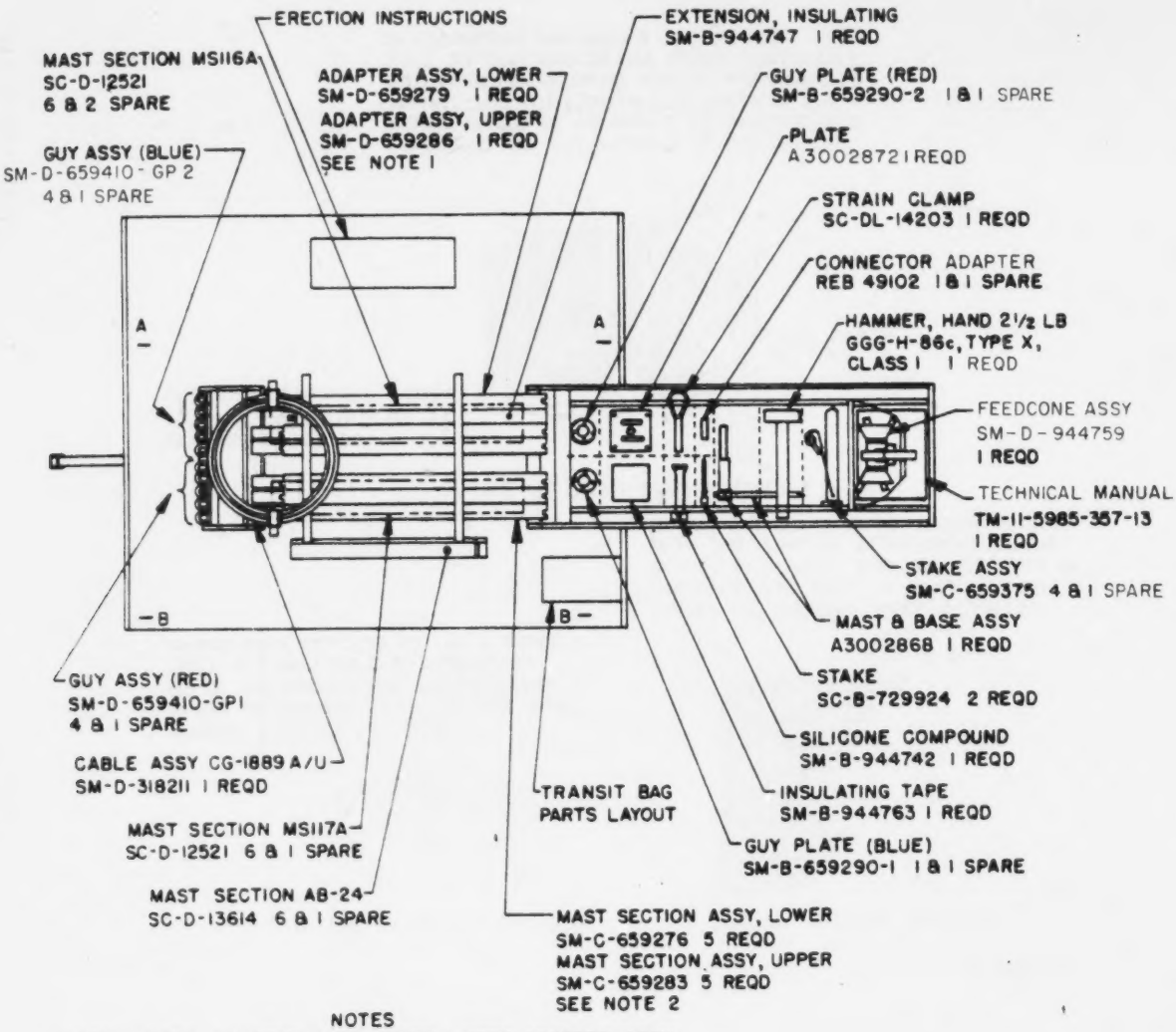


Figure 2-21.1 Transit bag with parts installed, Contract DAAK80-80-C-0277.

2-10. Antenna Stowage/Transit

The OE-254/GRC should be disassembled and stowed in the transit bag, when the equipment is in transit or storage. Pack the equipment in the transit bag as follows:

a. Secure items in the roll bag as shown in figure 2-21 or 2-21.1 (Contract DAAK80-80-C-0277). Fold the stake portion of mast and base assembly of the AB-1244/GRC (fig. 2-21.1) to a 90 degree angle in order to fit within the transit bag.

b. Fold the secured mast sections AB-24 onto mast sections MS-117A.

c. Fold the roll bag section with secured feedcone assembly onto the mast sections placing the feedcone assembly in the middle of the transmission line.

d. Fold upper and lower edge of bag toward center.

e. Fold bag "A" over upper and lower bag edges so that taped sides are running top to bottom on the bag. Run inner strap through slots "A" from inside to outside, and secure.

f. Fold side "A" over bag by overlapping with side "A".

g. Run two end straps through slots "B" from inside to outside, and secure.

h. Secure center straps.

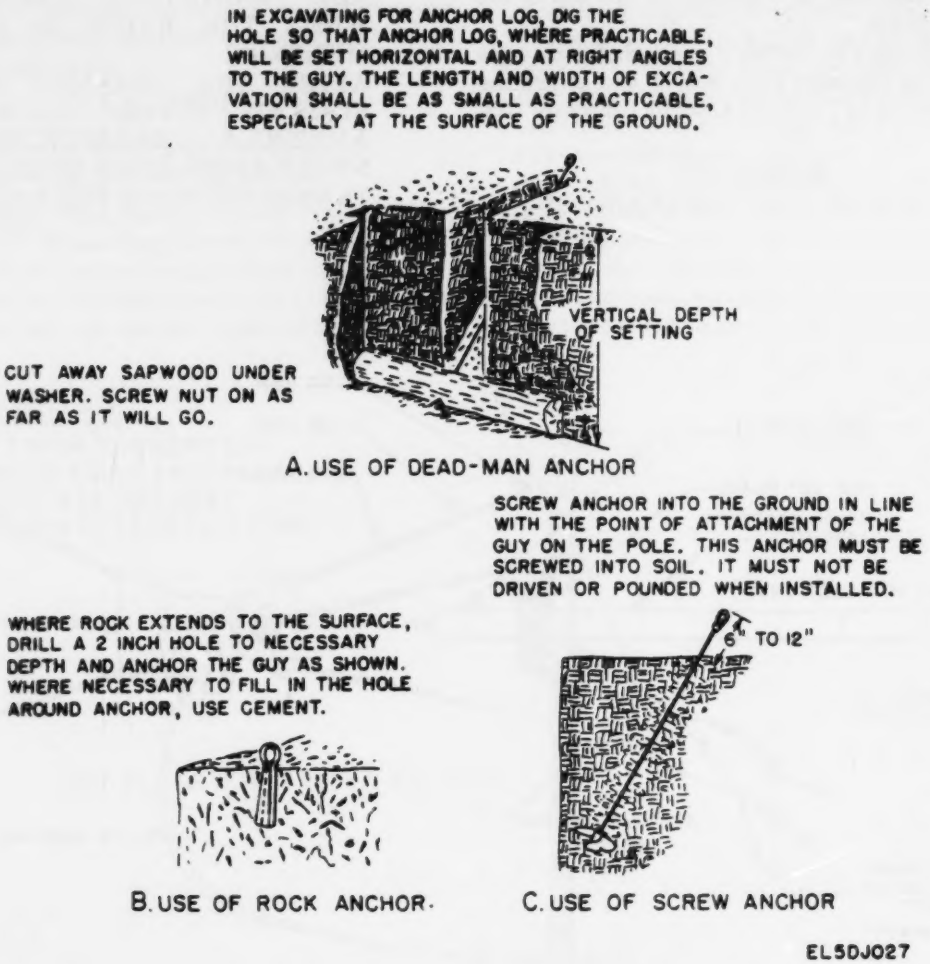

IN EXCAVATING FOR ANCHOR LOG, DIG THE HOLE SO THAT ANCHOR LOG, WHERE PRACTICABLE, WILL BE SET HORIZONTAL AND AT RIGHT ANGLES TO THE GUY. THE LENGTH AND WIDTH OF EXCAVATION SHALL BE AS SMALL AS PRACTICABLE, ESPECIALLY AT THE SURFACE OF THE GROUND.
VERTICAL DEPTH OF SETTING
CUT AWAY SAPWOOD UNDER WASHER. SCREW NUT ON AS FAR AS IT WILL GO.
A. USE OF DEAD-MAN ANCHOR
SCREW ANCHOR INTO THE GROUND IN LINE WITH THE POINT OF ATTACHMENT OF THE GUY ON THE POLE. THIS ANCHOR MUST BE SCREWED INTO SOIL. IT MUST NOT BE DRIVEN OR POUNDED WHEN INSTALLED.
WHERE ROCK EXTENDS TO THE SURFACE, DRILL A 2 INCH HOLE TO NECESSARY DEPTH AND ANCHOR THE GUY AS SHOWN. WHERE NECESSARY TO FILL IN THE HOLE AROUND ANCHOR, USE CEMENT.
6" TO 12"
B. USE OF ROCK ANCHOR.
C. USE OF SCREW ANCHOR
EL5DJ027

Figure 2-22. Typical substitute ground anchors.

d. Installing OE-254/GRC on M577 Command Post (fig. 2-24).

WARNING

BEFORE INSTALLING THE OE-254/GRC ON AN M577 COMMAND POST, OBSERVE THE FOLLOWING:
1. TURN OFF THE RADIO UNTIL THE OE-254/GRC IS INSTALLED.
2. WATCH OUT FOR POWER LINES!!!!
SEE THE WARNING IN FIGURE 2-0. ALSO, OBSERVE THE WARNING INSTRUCTIONS ON ANTENNA ERECTION IN THE FRONT OF THIS MANUAL.

The OE-254/GRC can be installed on the top of the M577 command post (TM 9-2300-257-10) and connected to the radio inside the vehicle. A pair of brackets is provided on the top of the M577 to hold the OE-254/GRC upright.

(1) Assemble the antenna mast as shown in figure 2-23. Only three guy ropes are required. Tape the CG-1889B/U once or twice to the mast.

NOTE

The asembled mast can stand upright in the M577 brackets without being guyed. The guys are left tied and stored at the bottom of the mast. If winds of over 10 miles an hour are experienced, attach the guys to equidistant points on the top of the vehicle where "TO ANCHOR" is shown in figures 2-6, 2-7, and 2-8.

(2) Raise the assembled mast and insert the

bottom section into the brackets on the top of the M577 (fig. 2-24).

(3) Run the CG-1889B/U through the driver's hatch, coil up the extra cable length, and attach the cable connector to the radio antenna connector (fig. 2-17).

WARNING

DANGEROUS VOLTAGES EXIST ON THE RADIATING ELEMENTS WHEN THE RADIO IS TRANSMITTING!!!

AFTER THE ANTENNA IS INSTALLED, NEVER TOUCH THE ANTENNA ELEMENTS—YOU NEVER KNOW EHEN SOMEONE IS TRANSMITTING ON THE RADIO.

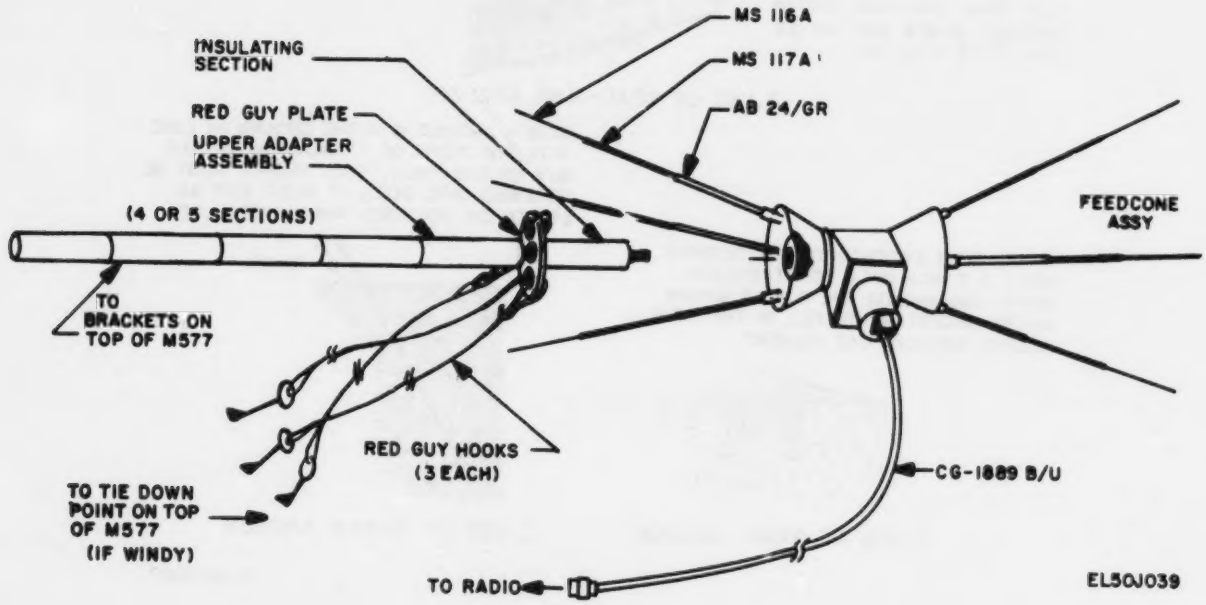


Figure 2-23. Assembling OE-254/GRC for use on M577 command post.

2-11. Operation Under Unusual Conditions

a. The AS-3166/GRC can be installed on utility poles and buildings by using adjustable automotive hose clamps to secure to other poles.

CAUTION

Always use the 30 inch insulating mast section (fig. 2-9) with this antenna.

b. Camouflage Pattern Painting. Consult Training Circular (TC) 5-200, Camouflage Pattern Painting for method and application of camouflaging military equipment.

c. Soil Problems. It is difficult to anchor an antenna mast in loose sand and soft clay soil. Stakes driven into sand and soft clay are easily loosened and pulled out by winds of moderate velocities. Keep the antenna mast guys evenly taut at all times; but allow for expansion/contraction (para 2-5*b*). If stakes driven into poor soil do not hold, some means of anchoring the stake will have to be used. A suitable weight such as a large rock or tree should be placed on top of the stake to anchor it. If in the field and no other expedient is available, use heavy tools or equipment to anchor the stakes. Often it is practical to use a large screw anchor (C, fig. 2-22) or preferably a dead-man anchor (A, fig. 2-22) instead of the stake to secure the guy wires of the antenna mast. A rock anchor (B, fig. 2-22) may be required for use where rock extends to the surface.

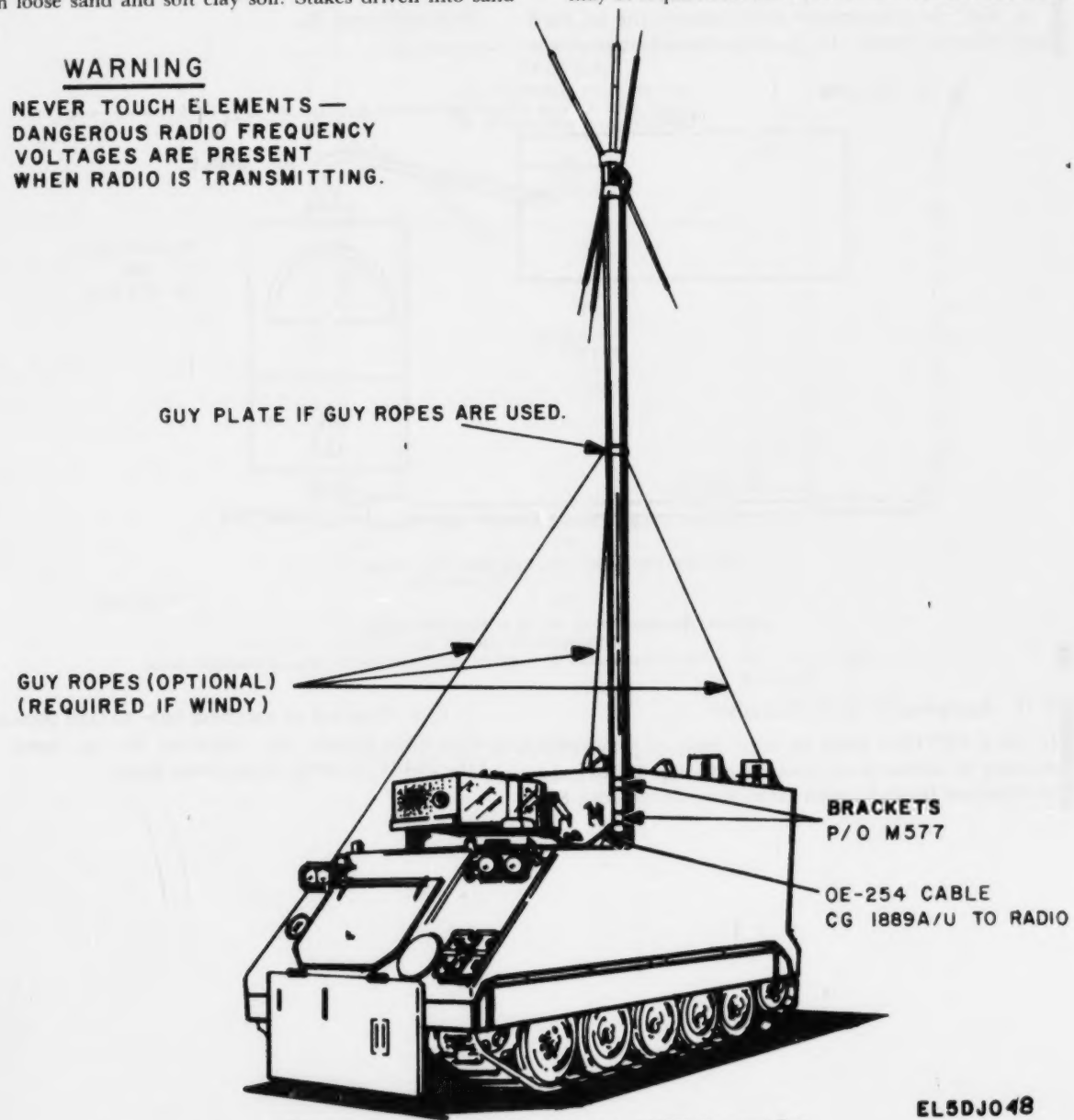

WARNING
NEVER TOUCH ELEMENTS — DANGEROUS RADIO FREQUENCY VOLTAGES ARE PRESENT WHEN RADIO IS TRANSMITTING.
GUY PLATE IF GUY ROPES ARE USED.
GUY ROPES (OPTIONAL) (REQUIRED IF WINDY)
BRACKETS P/O M577
OE-254 CABLE CG 1889A/U TO RADIO
EL5DJ048

Figure 2-24. OE-254/GRC Installed on top of M577 Command Post.

2-12. Checking Installed OE-254/GRC Using Test Set, Rf Power AN/URM-182 or AN/URM-182A (fig. 2-25)

After the OE-254/GRC is installed and connected to the radio, a check of the performance of the radio with the OE-254/GRC can be performed using the thru-line wattmeter AN/URM-182 (TM 11-6625-2718-14&P) or AN/URM-182A (TM 11-6625-2718-14-1).

a. Connect the thru-line wattmeter as shown in figure 2-25.

b. Key the transmitter and measure the forward and reflected power. In general, the reflected power indication should not be more than one-third of the forward power indication. For example:

Forward power (watts)	*Maximum reflected power (watts)*
3	1
6	2
9	3
33	11
45	15
66	22
etc	etc

c. If the maximum reflected power requirement (*b* above) is exceeded, refer to the wattmeter publication or to the operator's publication covering the radio (appx A).

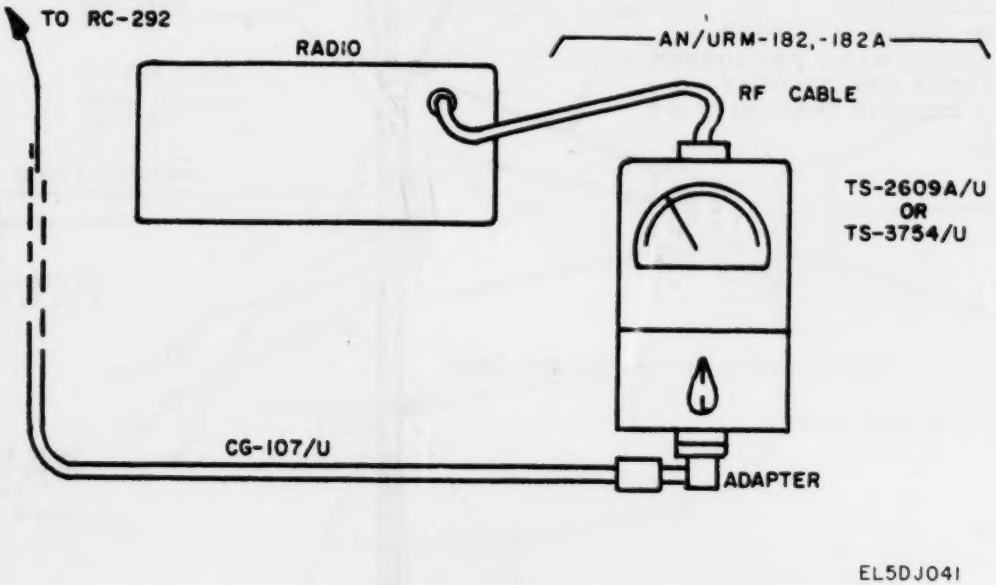


Figure 2-25. Test setup for radio and OE-254/GRC with AN/URM-182 or AN&URM-182A.

2-13. Applying WARNING Label

It the CAUTION label on mast base (fig. 2-17) is missing or obliterated, another one (fig. 2-26) may be obtained (item 5, appx E) in accordance with SB 11-614. Attach it to the mast base so that personnel will not forget the requirement to keep the OE-254/GRC away from power lines.

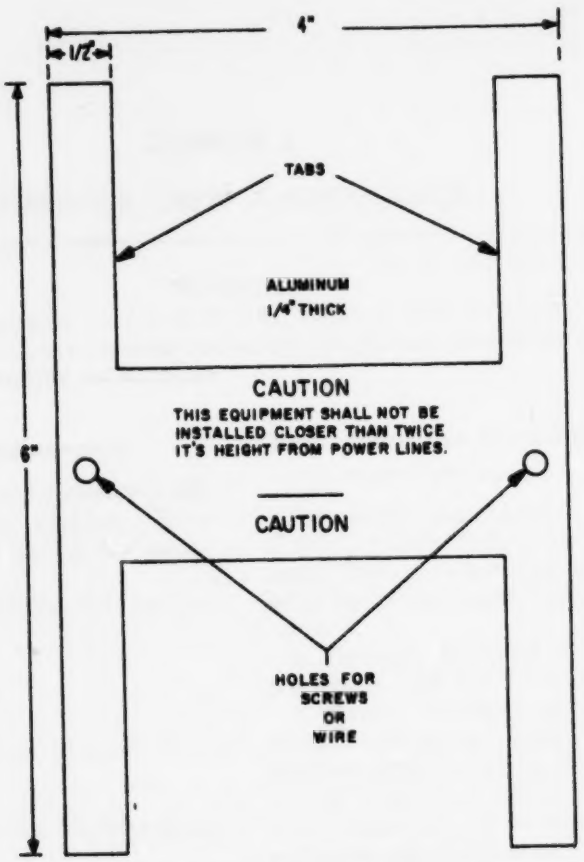

4"
1/2"
6"
TABS
ALUMINUM
1/4" THICK
CAUTION
THIS EQUIPMENT SHALL NOT BE INSTALLED CLOSER THAN TWICE IT'S HEIGHT FROM POWER LINES.
CAUTION
HOLES FOR SCREWS OR WIRE
1. WRAP TABS TIGHTLY AROUND TUBES, POLES OR
2. CUT OFF TABS AND USE SCREWS TO ATTACH TO EQUIPMENT, OR
3. CUT OFF TABS AND USE WIRE THROUGH HOLE(S) TO ATTACH TO EQUIPMENT.
EL50J042

Figure 2-26. WARNING label.

CHAPTER 3

OPERATOR/CREW MAINTENANCE

WARNING

Dangerous rf voltagesexist at AS-3166/GRC elements and connectors. Personnel should be familiar with the warnings and safety instructions given in the front of the manual before attempting maintenance.

3-1. Scope of Operator's Maintenance

Following is a list of maintenance duties normally performed by the OE-254/GRC operator. These procedures do not require special tools or test equipment. wkly

a. Preventive maintenance checks and services chart (table 3-1).

b. Cleaning (para 3-5).

3-2. Materials Required

a. Trichlorotrifluoroethane (item 3, appx E).

b. Cleaning cloth.

3-3. Operator/Crew Preventive Maintenance

Preventive maintenance is the systematic care, servicing, and inspection of equipment to prevent the occurrence of trouble, reduce downtime, and assure that the equipment is operational.

a. Systematic Care. The procedures given in table 3-1 cover routine, systematic care and cleaning essential to proper upkeep and operation of the equipment.

b. Preventive Maintenance Checks and Services. The preventive maintenance checks and services chart (table 3-1) outlines functions to be performed daily. These checks and services are to maintain Army electronic equipment in a combat-serviceable condition; that is, in good general (physical) condition and in good operating condition. To assist operators in maintaining combat serviceability, the chart indicates when to check, how to check, and the normal conditions. The *for readiness reporting, equipment is Not ready/available if* column lists the criteria when the OE-254/GRC is classified as not ready for its primary mission. If the defect cannot be remedied by the operator, higher category maintenance or repair is required. Records and reports of these checks and services must be made in accordance with the requirements set forth in TM 38-750.

3-4. Preventive Maintenance Checks and Services Periods

Preventive maintenance checks and services (PMCS) of the OE-254/GRC are required on a daily/ basis. Table 3-1 specifies checks and services that must be accomplished under the conditions listed below.

a. During. Be sure to perform *during* (D) procedures each day the antenna is installed.

b. Weekly Procedure. If the equipment was not checked during the week, perform the D PMCS together with the weekly (W) PMCS.

c. If Your Radio Equipment Fails to Operate. Troubleshoot the radio system as outlined in the applicable technical manual for the radio system (app A). If you are unable to clear the trouble, report the failure using the proper form (TM 38-750).

NOTES

Routine checks are not listed as PMCS; such as: cleaning (para 3-5); checking for frayed cables; stowing items not in use; covering unused receptacles; checking for loose nuts and bolts. These are things that should be done anytime you see they must be done.

The *Item No.* in table 3-1 shall be used as a source of item numbers for the *TM number* column on DA Form 2404 (Equipment Inspection and Maintenance Worksheet) in recording the results of the PMCS.

If the equipment must be kept in constant operation, check and service only those items that can be checked and serviced without disturbing operation. Make complete checks and services when the equipment can be shut down.

Table 3–1. Operator's Preventive Maintenance Checks and Services (PMCS)

Within the designated interval, these checks are to be performed in the order listed.

B–Before *D–During* *A–After* *W–Weekly*

Item No.	Interval D	Interval W	Item to be inspected	Procedure	For readiness reporting, equipment is not ready/available if:
1	•		Guy Assemblies	Check and adjust, as necessary, the tautness of the guy assemblies. The mast should not be bowed; check straightness by comparing with a building, pole, etc. **NOTE** Experience should tell how taut to set the guy assemblies to allow for expansion and contraction of the mast during changes of hot and cold temperatures.	
2	•		CG–1889B/U	Check to see that the cable lying on the ground is undamaged, and if required for area traffic condition, is protected by boards (para 2–7*b*).	
3	•		Radio Communication	Check communication function of associated radio.	Associated radio communication fails because of OE–254/GRC.
4		•	Guy Stakes	Check the guy stakes for looseness. Hammer them in or reposition them if soil conditions are better in another spot.	
5		•	Baseplate	Inspect the baseplate stakes for security in the ground. Hammer them in if necessary.	
6		•	Strain Clamp	Look to see that the CG–1889B/U is being held up by the strain clamp. Fix it if necessary (fig. 2–13 and 2–14).	

3–5. Cleaning

a. Remove dust and loose dirt using water and cloth or brush.

WARNING

Trichlorotrifluoroethane is DANGEROUS. Adequate ventilation should be provided while using it. Prolonged breathing of its vapor should be avoided. The solvent should not be used near heat or an open flame; the products of decomposition are toxic and irritating. Since trichlorotrifluorethane dissolves natural oils, prolonged contact with skin should be avoided. When necessary, use gloves which the solvent cannot penetrate. If the solvent is taken internally, consult a physician immediately.

DO NOT use the solvent to clean the plastic insulator or balun housing of the AS-3166/GRC (fig. 6–1).

b. Remove grease, fungus, and ground-in dirt with a cloth dampened with trichlorotrifluorethane (item 3, appx E).

c. Clean the guy ropes by washing them; allow the washed items to dry thoroughly.

CHAPTER 4

ORGANIZATIONAL MAINTENANCE

WARNING

Dangerous voltages exist in the CG-1889 B/U, the feedcone assembly and the radiating elements. Therefore, never work on or touch these parts until the CG-1889 B/U is disconnected from the radio.

4-1. Scope of Organizational Maintenance

Organizational maintenance of the OE-254/GRC consists of the following:

a. Preventive maintenance (para 4-3 and table 4-1).

b. Touchup painting (para 4-4).

c. Troubleshooting (para 4-6).

4-2. Test Equipment, Tools and Materials Required

Organizational repair parts are listed in TM 11-5985-357-23P

a. Test Equipment. Multimeter AN/URM-105 is the only test equipment required.

b. Tools. Tool Kit, Electronic Equipment TK-101/G contains all the tools required.

c. Materials.

(1) Trichlorotrifluoroethane (item 3, appx E).

(2) Paint, Alkyd, Camouflage, Forest Green per MIL-E-52798 (item 4, appx. E).

4-3. Organizational Preventive Maintenance Checks and Services

Preventive maintenance is the systematic care, inspection, and servicing of equipment to maintain it in serviceable condition, prevent breakdowns, and assure maximum operational capability. Organizational preventive maintenance checks and services (PMCS) are performed quarterly (table 4-1).

a. Quarterly PMCS will be scheduled in accordance with procedures specified in TM 38-750.

b. The *Item No.* in table 4-1 shall be used as a source of item numbers for the *TM number* column on DA Form 2404 (Equipment Inspection and Maintenance Worksheet) in recording the results of the PMCS.

c. If the equipment fails to meet the criteria in the procedure scolumn of table 4-1, report the failure in accordance with the procedures specified in TM 38-750.

d. If the equipment must be kept in constant operation, check and service only those items that can be done without disturbing operation. Make the complete checks and services when the equipment can be shut down.

e. Routine checks are not listed in the PMCS table; such as cleaning (para 3-5), dusting, washing; checking for frayed cables; stowing items not in use; covering unused receptacles; and checking for loose guys, stakes, and cable. These are things that should be done anytime you see they must be done.

4-4. Touchup Painting

Antenna Group OE-254/GRC equipment the finish of which has been badly scarred or damaged may be cleaned and repainted using the following procedure.

WARNING

Trichlorotrifluoroethane is DANGEROUS. Adequate ventilation must be provided while using it. Prolonged breathing of its vapor should be avoided. The solvent should not be used near heat or an open flame; the products of decomposition are toxic and irritating. Since the solvent dissolves natural oils, avoid prolonged contact with skin. Use gloves which the solvent cannot penetrate. If the solvent is taken internally, consult a physician immediately.

DO NOT use the solvent to clean the plastic insulator or the balun housing of the AS-3166/GRC (fig. 6-1).

a. Lightly sand scarred equipment surfaces with #00 or #000 grade sandpaper and clean the bare metal with trichlorotrifluorethane (item 3, appx E).

b. Brush two coats of paint (Enamel, Alkyd, Camouflage, color Forest Green, per MIL-E-52798) (item 4, appx E) on the metal.

NOTE

Refer to the applicable cleaning and refinishing practices specified in SB 11-573 and TB 43-0118.

Table 4-1. Organizational Preventive Maintenance Checks and Services-Quarterly Schedule

Item No.	Item to be inspected	Procedure Check for and have repaired or adjusted as necessary
1	Completeness	All components required to make the OE-254/GRC operational are on hand (app B) or are available.
2	Publications	TM 11-5985-357-13 is on hand with latest changes; see DA 310-4 for current publication listing.
3	Modifications	Check DA Pam 310-4 to see if any modification work orders (MWO's) are listed for the OE-254/GRC or its components. All URGENT MWO's must be applied immediately; all NORMAL MWO's must be scheduled.
4	Metal surfaces	Remove rust, corrosion, and fungus; spot-paint bare metal spots (para 4-4).
5	Weatherproofed connectors	Remove old and install new electrical tape (item 1, app E) on connections (fig. 2-18 and 2-19).
6	Anticorrosion silicone compound	Remove old and install new anticorrosion compound (item 2, app E) on threaded areas of the mast sections and insulating extension.

4-5. Organizational Maintenance Troubleshooting Procedures

Perform the applicable organizational maintenance procedure using the technical manual for the radio set with which the OE-254/GRC is used. If the OE-254/GRC is defective, perform the troubleshooting operations given in paragraph 4-6. If the corrective measures given in paragraph 4-6 do not clear the trouble, higher category maintenance is required.

4-6. Organizational Troubleshooting

The electrical troubles that occur in the OE-254/GRC are open circuits, short circuits, and poor connections. These troubles can be isolated by making continuity checks, using Multimeter AN/URM-105. The procedures are listed below.

a. Place the antenna base on an insulated surface.

b. Check the feedcone assembly (fig. 6-2) as follows:

(1) Check the continuity between the radial element sockets and the Connector UG-680B/U center pin on the feedcone assembly using a low resistance range on the ohmmeter. The resistance should be near zero.

(2) Check the continuity between the UG-680B/U connector center pin and outer conductor using a low resistance range on the ohmmeter. The resistance should be near zero.

(3) If required readings in (1) and (2) above are not obtained, replace the feedcone assembly.

c. Check the CG-1889 B/U as follows:

(1) Check the continuity of the coaxial cable center conductor, using a low resistance range of the ohmmeter. The resistance should be near zero. An open circuit is indicated by a resistance reading of infinity.

(2) Check the coaxial cable for a short circuit between the wire braid and the center conductor, using the highest resistance range of the ohmmeter. The resistance should be nearly infinity if no short is present.

(3) If required readings are not obtained in (1) or (2) above, replace the CG-1889 B/U.

4-7. Repairs

Repairs on the OE-254/GRC consist mainly of replacing the defective component (fig. 1-2) with parts authorized organizational maintenance; see TM 11-5985-357-23P for parts listing.

CHAPTER 5

FUNCTIONING OF EQUIPMENT

5-1. General

(fig. 1-1)

Antenna Group OE-254/GRC consists primarily of Antenna AS-3166/GRC mounted on Mast AB-1244/GRC. Cable Assembly, Radio Frequency CG-1889B/U (80 ft) is connected between the feedcone assembly of the AS-3166/GRC and the associated radio. The cable and the AS-3166/GRC provide radiofrequency communication in the 30- to 88-MHz range, up to 350 watts (nominal). The balun assembly in the feedcone assembly (fig. 5-1) provides impedance match between the impedances of the radio and the biconical antenna elements (para 5-2).

5-2. Balun Assembly Function

The balun assembly is a 4:1 impedance transformer that matches to nominal 200 ohms impedance at the biconical antenna terminals to the unbalanced 50 ohm transmission line. The transformer consists of two bifilar windings on a ferrite toroid core as shown in figure 5-1. The two windings are connected in series to provide an autotransformer with the junction of the black and white leads providing the ground side of the 50-ohm impedance. The capacitor across the low impedance side optimizes the 50 ohms impedance across the 30-to 88 MHz frequency range.

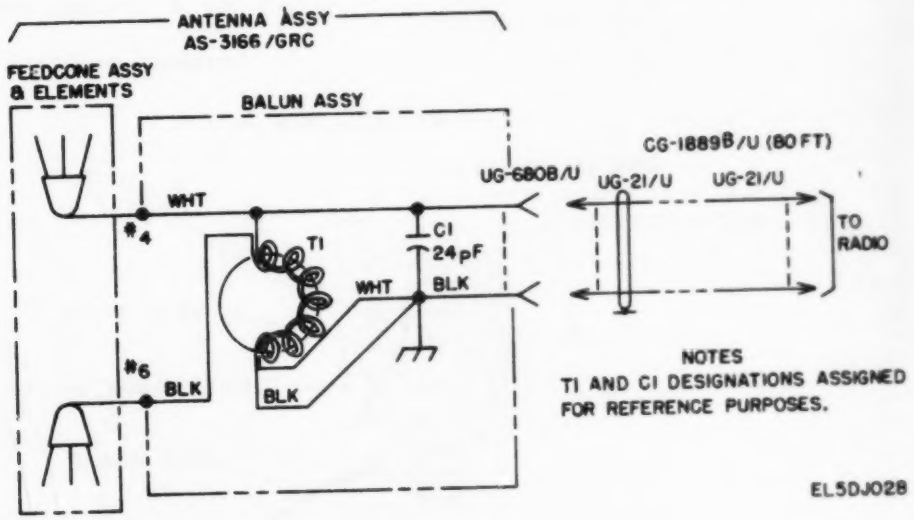


Figure 5-1. Balun assembly diagram.

CHAPTER 6

DIRECT SUPPORT MAINTENANCE INSTRUCTIONS

6-1. Scope of Direct Support Maintenance

Direct support maintenance includes those in *a* and *b* below in addition to the duties prescribed for organizational maintenance (chap 4). Repair parts are listed in TM 11-5985-357-23P.

a. Repair of the feedcone assembly including replacement of the feedcone subassembly or UG-680/U and the repair of broken lead wires.

b. Repair of Cable Assembly, Radio Frequency CG-1889B/U (fig. 6-7).

6-2. Tools, Test Equipment, and Materials Required

a. Tools. Tool Kit, Electronic Equipment TK-100/G.

b. Test Equipment. Multimeter TS-352B/U.

c. Materials. See appendix E for available materials.

6-3. Direct Support Troubleshooting

a. Feedcone Subassembly (fig. 6-2 and 6-3).

(1) *Visual inspection.*

(a) Inspect the six radiating element female sockets for evidence of an interference fit when mated with an MS-116A antenna element.

(b) Inspect the Lexan insulator assembly and adhesive joint for cracks or evidence of deterioration.

(c) Inspect the four helical coils on the Lexan insulator for stripping or physical deterioration.

(d) Inspect the three helical coils on the upper and lower cone castings for stripping or physical deterioration.

(e) Clean out the weep holes (fig. 6-2).

(2) *Continuity check.* Place the feedcone subassembly on an insulated surface. Check the continuity between the radial element sockets and the associated #4 or #6 terminal using a low resistance range on the ohmmeter (fig. 6-3). The resistance should be near zero.

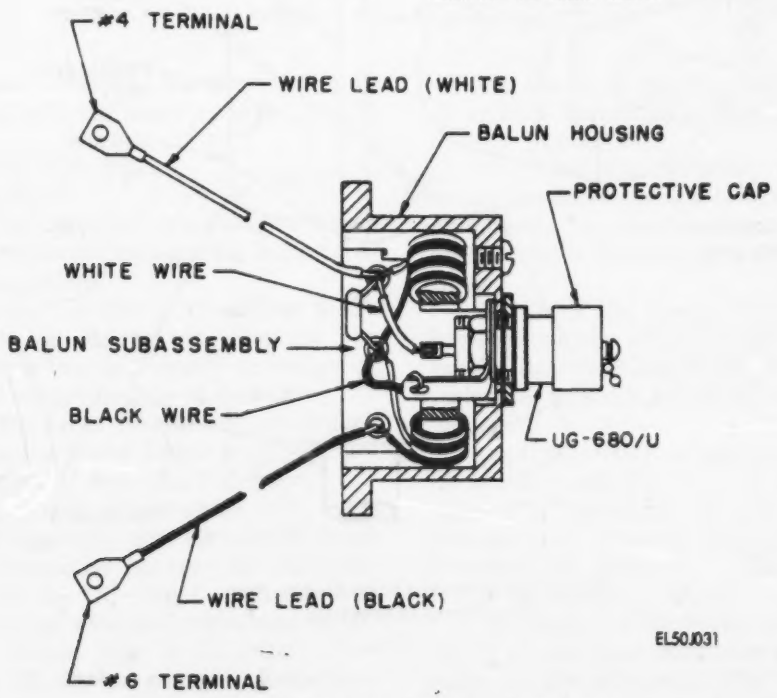


Figure 6-1. Balun assembly, internal view.

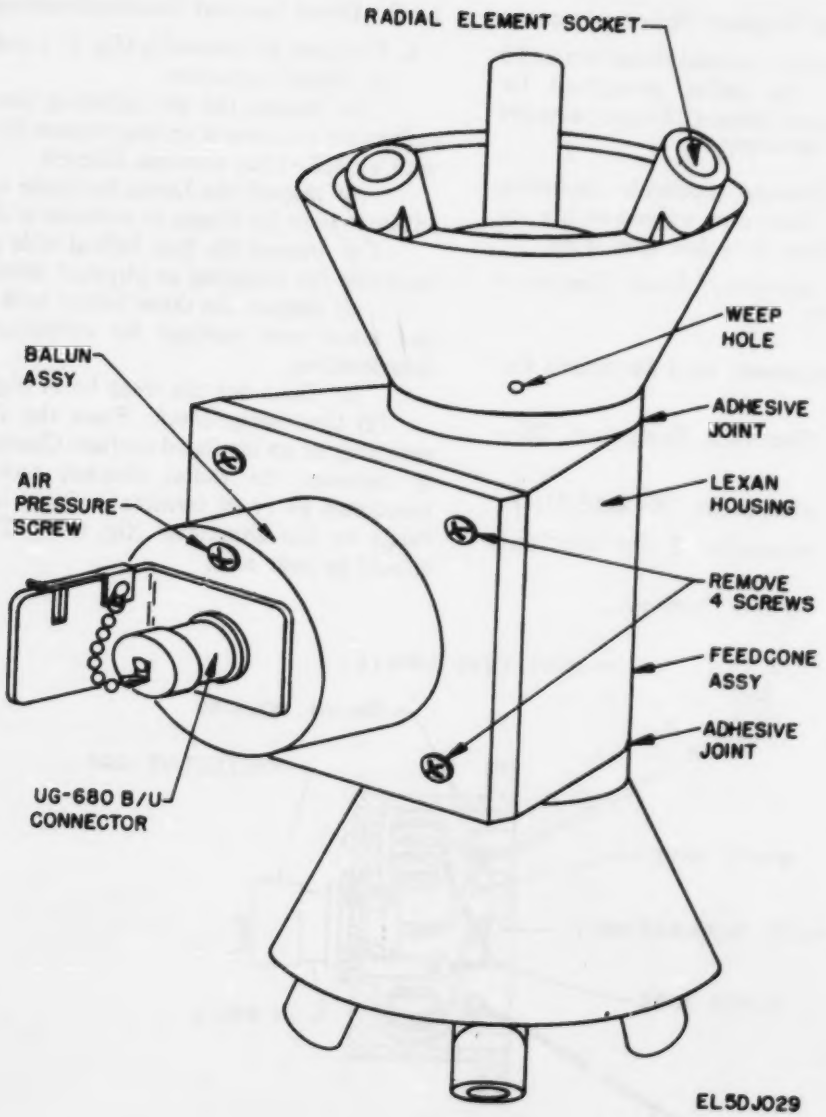


Figure 6-2. Removing balun housing from the feedcone subassembly.

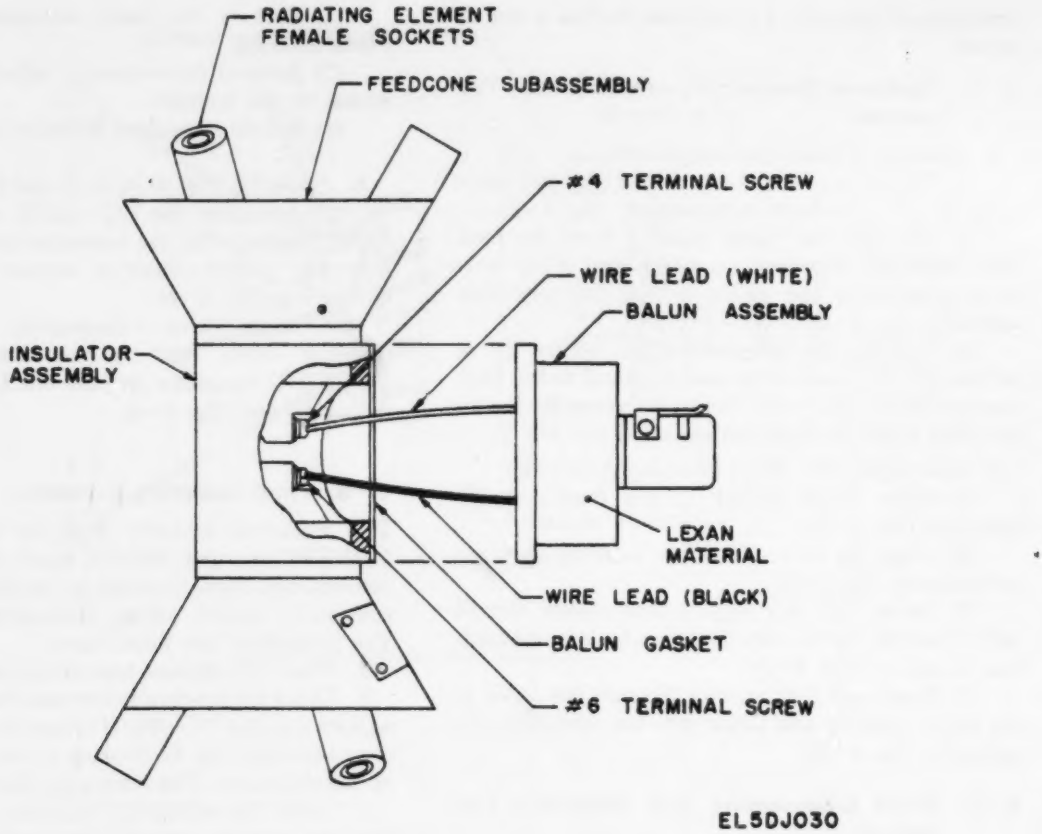


Figure 6-3. Exposing wire leads.

(3) *Replacement.* Replace the feedcone subassembly if the unit fails any check made in (1) or (2) above.

b. Balun Assembly (fig. 6-1).

(1) Visual inspection.

(a) Inspect the Lexan balun housing for cracks or evidence of deterioration. Replace the balun housing if unit fails inspection.

(b) Inspect the UG-680/U for damage to the connector threads or center pin. Replace the UG-680/U following the disassembly procedure of paragraph 6-5*a* if connector fails inspection.

(c) Inspect the balun subassembly for broken wire leads or poor solder joints. Repair or replace wire leads and solder joints if unit fails inspection.

(2) *Continuity Check.* Disassemble unit if required, using the disassembly procedure of paragraph 6-5*a*. Check the continuity between the shell and center conductor of the UG-680/U connector and between the #4 terminal wire lead (white) and #6 terminal wire lead (black) (fig. 6-1) using a low resistance range on the ohmmeter. Resistance readings should be near zero indicating direct continuity. Repair or replace the UG-680/U connector or balun subassembly if unit fails the test.

*c. CG-1889*B/U.

(1) Check the continuity of the coaxial cable center conductor using a low resistance range of the ohmmeter. The resistance should be near zero. An open circuit is indicated by a resistance reading of infinity.

(2) Check the coaxial cable for a short circuit between the wire braid and the center conductor, using the highest resistance range of the ohmmeter. The resistance should be nearly infinite if no short is present.

(3) If required readings are not obtained in (1) or (2) above, repair the CG-1889 B/U by replacing the cable or by shortening the cable by severing a defective end and replacing the connectors per cabling procedure of figure 6-7. The cable should be a minimum 50 feet in length.

(4) Check the continuity between the connector center pin and outer conductor using a low resistance range on the ohmmeter. The resistance should be zero. Repair or replace connector per cabling

procedure of figure 6-7 if required reading is not obtained.

6-4. Feedcone Disassembly and Assembly Procedures

a. Removal of Balun Housing Assembly.

(1) Remove the four screws that hold the balun housing to the feedcone subassembly (fig. 6-2).

(2) Separate the balun housing from the feedcone assembly exposing the black and white wire leads connecting the balun to the feedcone subassembly (fig. 6-3).

(3) Remove the two screws that secure the #4 (white) and #6 (black) wire lead terminal to the feedcone structure (fig. 6-3). The balun assembly is now detached from the feedcone subassembly.

b. Assembling the Balun Housing Assembly.

(1) Align balun gasket to the feedcone subassembly (fig. 6-3).

(2) Align the balun assembly with the feedcone subassembly (fig. 6-3).

(3) Screw the two screws that secure the #4 (white) and #6 (black) wire lead terminals to the feedcone structure (fig. 6-3).

(4) Insert the four screws through the holes in the balun housing and screw into the feedcone subassembly (fig. 6-2).

6-5. Balun Disassembly and Assembly Procedures

a. Disassembly (fig. 6-4 and 6-5)

(1) Unsolder the white lead from the center pin of the UG-680/U connector and the black lead from the connector ground lug.

(2) Remove the balun subassembly from the balun housing.

(3) Remove the connector retaining nut using a socket or end wrench.

(4) Repair or replace defective parts.

b. Assembly (fig. 6-4, 6-5 and 6-6).

(1) Assemble the UG-680/U connector to the balun housing with the connector protection bracket assembly, gasket connector, washer, lockwasher and ground lug (fig. 6-6).

(2) Insert balun subassembly (fig. 6-5) and resolder white lead to the center pin of the UG-680/U connector and the black lead to the connector ground (fig. 6-4).

6-6. Final Assembly Inspection

The electrical troubles that occur in the AS-3166/GRC are open circuits, short circuits, and poor connections. These troubles can be isolated by making continuity checks, using Multimeter TS-352B/U. The procedures are listed below.

a. Place the antenna base on an insulated surface.

b. Check the continuity between the radial element sockets and the UG-680/U connector pin on the feedcone assembly (fig. 6-2) using a low resistance range on the ohmmeter. The resistance should be near zero.

c. Check the continuity between the UG-680/U connector center pin and outer conductor using a low resistance range on the ohmmeter. The resistance should be zero.

d. Units that pass inspection may now be placed in service.

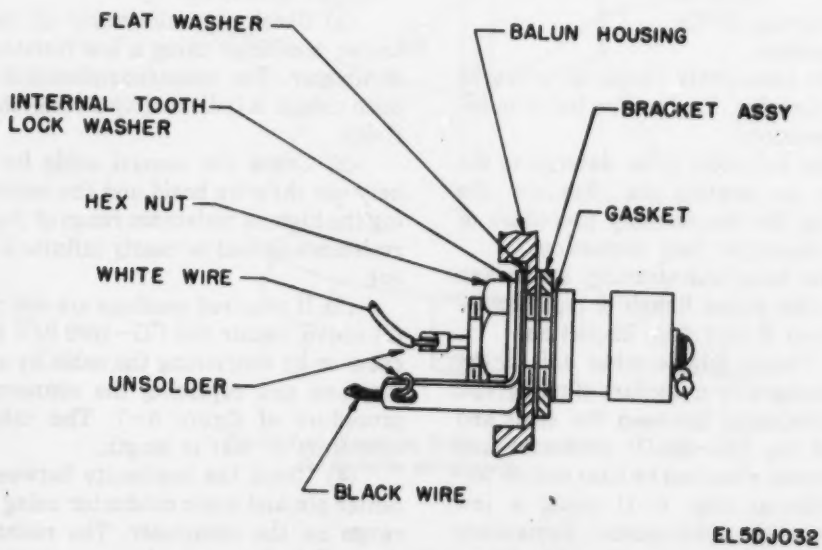


Figure 6-4. Unsoldering wire leads.

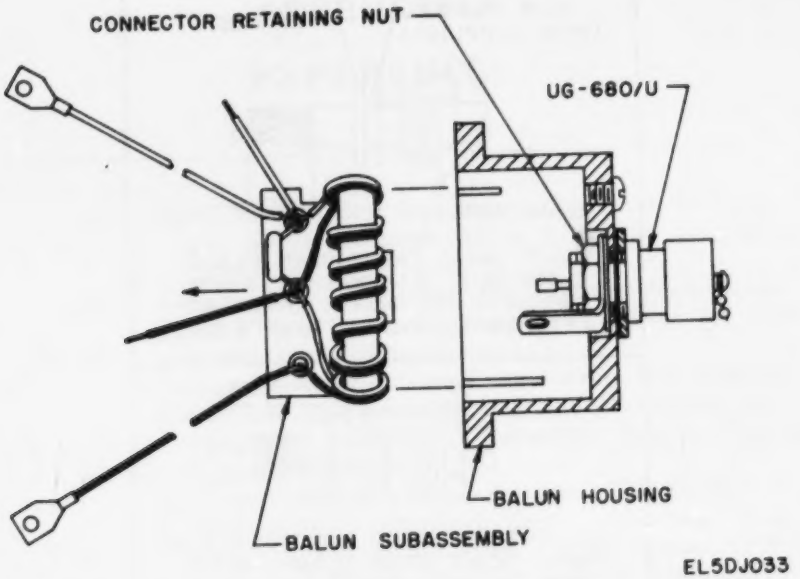


Figure 6-5. Removing balun subassembly.

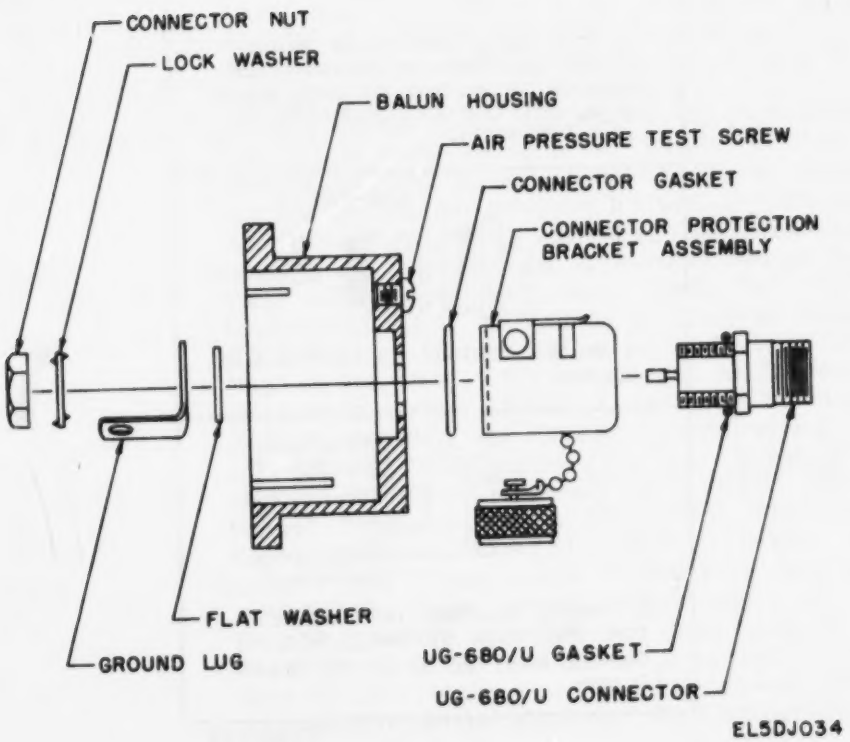
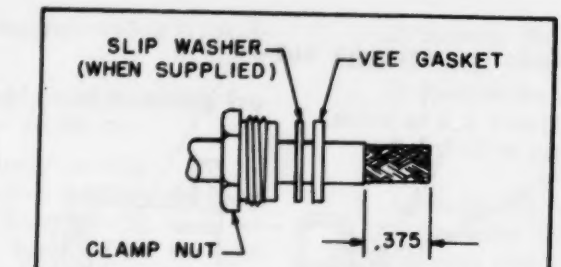
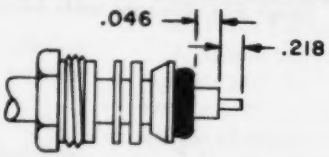


Figure 6-6. Assembling UG-680/U to balun assembly.

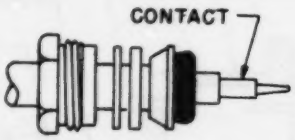


1. CUT CABLE END SQUARE, PLACE CLAMP NUT, SLIP WASHER (WHEN SUPPLIED) AND GASKET OVER JACKET. REMOVE JACKET TO .375 DIM.

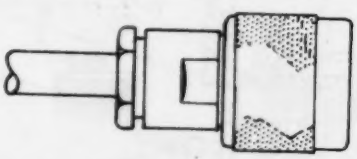
2. COMB OUT BRAID AND TAPER FORWARD. PLACE BRAID CLAMP OVER BRAID AGAINST JACKET CUT.



3. FOLD BRAID BACK OVER BRAID CLAMP AND TRIM AS SHOWN ABOVE. REMOVE DIELECTRIC TO .046 DIMENSION. CUT CENTER CONDUCTOR TO .218 DIMENSION.



4. SOLDER CONTACT TO CENTER CONDUCTOR.



5. THREAD ASSEMBLY INTO CONNECTOR, AND LOCK SECURELY. VEE GASKET MUST BE SPLIT BY BRAID CLAMP.

EL5DJ035

Figure 6-7. Cabling procedure.

APPENDIX A

REFERENCES

DA Pam 310-4	Index of Technical Pulications: Technical Manuals, Technical Bulletins, Supply Manuals (types 7, 8, and 9), Supply Bulletins, and Lubrication Orders.
DA Pam 310-7	US Army Equipment Index of Modification Work Orders.
SB 11-573	Painting and Preserving Supplies Available for Field Use for Electronics Command Equipment.
SB 11-614	Caution Notice for Antenna Bases, Towers, and Other Mast Structures.
TB 43-0118	Field Instructions for Painting and Preserving Electronics Command Equipment Including Camouflage Pattern Painting of Electrical Equipment Shelters.
TM 9-2300-257-10	Operator's Manual: Carrier, Personnel: Full Tracked, Armored, M 113A1 (NSN 2350-00-968-6321); Carrier, Command Post: Light, Tracked, M577A1 (2350-00-056-6808); Carrier, Mortar: 81-MM, Self-Propelled, M106A1 (2350-00-071-9002) and 81-MM, Self-Propelled, M125A1 (2350-00-071-0732); Carrier, Flame Thrower: Self-Propelled, M132A1 (2350-00-056-6809).
TM 11-5820-398-12	Operator's and Organizational Maintenance Manual Including Repair Parts and Special Tools List: Radio Set AN/PRC-25 (Including Receiver-Transmitter, Radio RT-505/PRC-25).
TM 11-5820-401-10-1	Operator's Manual: Radio Sets AN/VRC-12 (NSN 5820-00-223-7412), AN/VRC-43 (5820-00-223-7415), AN/VRC-44 (5820-00-223-7417, AN/VRC-45 (5820-00-223-7418), AN/VRC-46 (5820-00-223-7433), AN/VRC-47 (5820-00-223-7434), AN/VRC-48 (5820-00-223-7435) and AN/VRC-49 (5820-00-223-7437) (Used Without an Intercom System).
TM 11-5820-401-10-2	Operator's Manual: Radio Sets AN/VRC-12 (NSN 5820-00-223-7412), AN/VRC-43 (5820-00-223-7415), AN/VRC-44 (5820-00-223-7417), AN/VRC-45 (5820-00-223-7418), AN/VRC-46 (5820-00-223-7433), AN/VRC-47 (5820-00-223-7434), AN/VRC-48 (5820-00-223-7435) and AN/VRC-49 (5820-00-223-7437) (Used With an Intercom System).
TM 11-5820-401-12	Operator's and Organizational Maintenance Manual (Including Repair Parts and Special Tools List): Radio Set AN/VRC-12 (NSN 5820-00-223-7412), AN/VRC-43 (5820-00-223-7415), AN/VRC-44 (5820-00-223-7417), AN/VRC-45 (5820-00-223-7418), AN/VRC-46 (5820-00-223-7433), AN/VRC-47 (5820-00-223-7434), AN/VRC-48 (5820-00-223-7435), AN/VRC-49 (5820-00-223-7437), AN/VRC-54 (5820-00-223-7567), and AN/VRC-55 (5820-00-402-2265), Mounting MT-1029/VRC (5820-00-893-1323) and Mounting MT-1898/VRC (5820-00-893-1324), Antenna AT-912/VRC (5820-00-897-6357); Control, Frequency Selector C-2742/VRC (5820-00-892-3343), and Control, Radio Set C-2299/VRC (5820-00-892-3340).
TM 11-5820-498-12	Operator's and Organizational Maintenance Manual: Radio Sets AN/VRC-53 (NSN 58200-00-223-7467), AN/VRC-64, (NSN 5820-00-223-7475), AN/GRC-125 (NSN 5820-00-223-7411), and AN/GRC-125 (NSN 5820-00-223-7411), and AN/GRC-160 (NSN 5820-00-223-7473), and Amplifier-Power Supply Groups OA-3633/GRC and OA-3633A/GRC (NSN 5820-00-973-3333).

TM 11-5820-667-12	Operator's and Organizational Maintenance Manual (Including Repair Parts Lists): Radio Set AN/PRC-77 (NSN 5820-00-930-3724) (Including Receiver-Transmitter, Radio RT-841/PRC-77 (NSN 5820-00-930-3725)).
TM 11-5895-357-23P	Organizational and Direct Support Maintenance, Repair Parts and Special Tools List for OE-254/GRC (To be published).
TM 11-6625-203-12	Operator's and Organizational Maintenance: Multimeter AN/URM-105 and AN/URM-105C Including Multimeter ME-77/U and ME-77C/U.
TM 11-6625-366-10	Operator's Manual for Multimeter TS-352B/U (NSN 6625-00-552-0142).
TM 11-6625-2718-14-1	Operator's, Organizational, Direct Support, and General Support Maintenance Manual: Test Set, Radio Frequency, Power, AN/URM-182A (NSN 6625-00-148-9371).
TM 11-6625-2718-14&P	Operator's, Organizational, Direct Support and General Support Maintenance Manual Including Repair Parts and Special Tools List: Test Set, Radio Frequency, Power AN/URM-182 (NSN 6625-00-148-9371).
TM 38-750	The Army Maintenance Management System (TAMMS).
TM 750-244-2	Procedures for Destruction of Electronics Materiel to Prevent Enemy Use (Electronics Command).

APPENDIX B
COMPONENTS OF END ITEM LIST

Section I. INTRODUCTION

B-1. Scope

This appendix lists integral components of and basic issue items for the OE-254/GRC to help you inventory items required for safe and efficient operation.

B-2. General

This Components of End Item List is divided into the following sections:

a. Section II. Integral Components of the End Item. These items, when assembled, comprise the OE-254/GRC and must accompany it whenever it is transferred or turned in. The illustrations will help you identify these items.

b. Section III. Basic Issue Items. These are the minimum essential items requirted to place the OE-254/GRC in operation, to operate it, and to perform emergency repairs. Although shipped separately packed they must accompany the OE-254/GRC during operation and whenever it is transferred between accountable officers. The illustrations will assist you with hard-to-identify items. This manual is your authority to requisition replacement BII, based on TOE/MTOE authorization of the end item.

B-3. Explanation of Columns

a. Illustration. This column is divided as follows:

(1) *Figure Number.* Indicates the figure number of the illustration on which the item is shown.

(2) *Item number.* The number used to identify item called out in the illustration.

b. National Stock Number. Indicates the National stock number assigned to the item and which will be used for requisitioning.

c. Part Number. Indicates the primary number used by the manufacturer, which controls the design and characteristics of the item by means of its engineering drawings, specifications, standards, and inspection requirements to identify an item or range of items. Following the part number, the Federal Supply Code for Manufacturers (FSCM) is shown in parentheses.

d. Description. Indicates the Federal item name and, if required, a minimum description to identify the item.

e. Location., The physical location of each item listed is given in this column. The lists are designed to inventory all items in one area of the major item before moving on to an adjacent area.

f. Usable on Code "USABLE ON" codes are included to help you identify which component items are used on the different models. Identification of the codes used in these lists are:

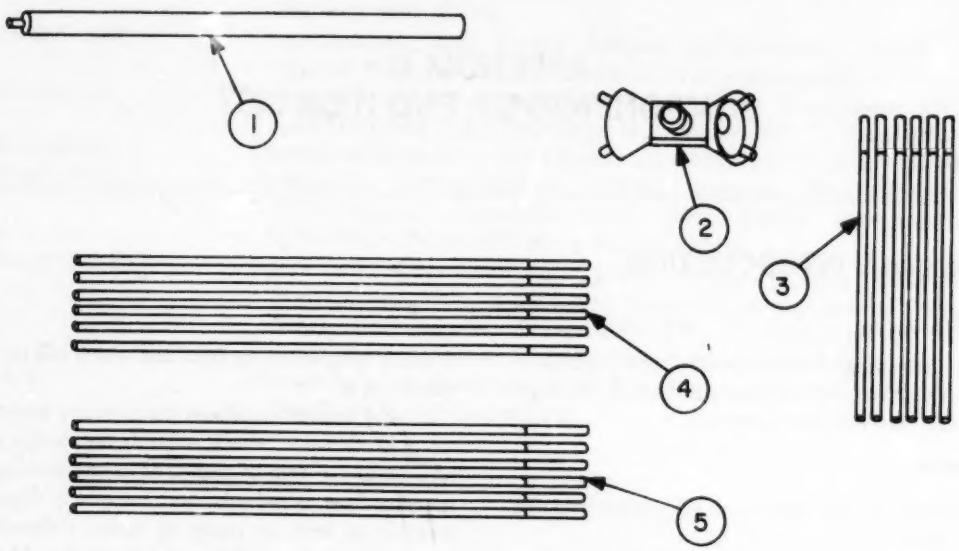
Code	*Used on*
A	OE-254/GRC with AB-1244/GRC
B	OE-254/GRC with AB-1244A/GRC

g. Quantity Reauired (Qty Reqd). This column lists the quantity of each item required for a complete major item.

h. Quantity. This column is left blank for use during an inventory. Under the Rcvd column, list the quantity you actually receive on your major item. The Date columns are for your use when you inventory the major item at a later date; such as for shipment to another site.

(Next printed page is B-2)

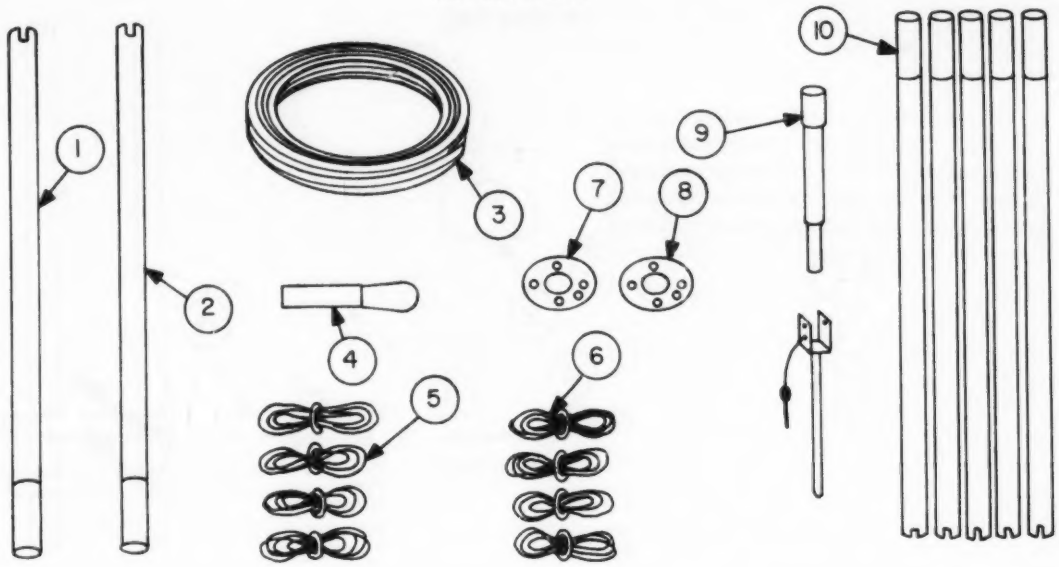
OE-254/GRC



SECTION II COMPONENTS OF END ITEM

(1) ILLUS NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION (FSCM) AND PART NUMBER	USABLE ON CODE	(4) U/M	(5) QTY REQD
	5985-01-063-1574	Antenna OE-254/GRC (80063) SM-D-944750 consists of:			
	5985-01-072-4461	Antenna AS-3166/GRC (80063) SM-D-944751 consists of:			
1	5985-01-072-4362	Extension, Insulating (80063) SM-B-944747	A,B	EA	1
2	5985-01-074-6684	Feedcone Assembly (80063) SM-D-944759	A,B	EA	1
3	5985-00-240-3720	Mast Section AB-24/GR (80063) SCD13614AB24GR	A,B	EA	6
4	5985-00-199-8831	Mast Section MS-116A (80063) SD12521MS116A	A,B	EA	6
5	5985-00-115-7149	Mast Section MS-117A (80063) SCD12521MS117A	A,B	EA	6

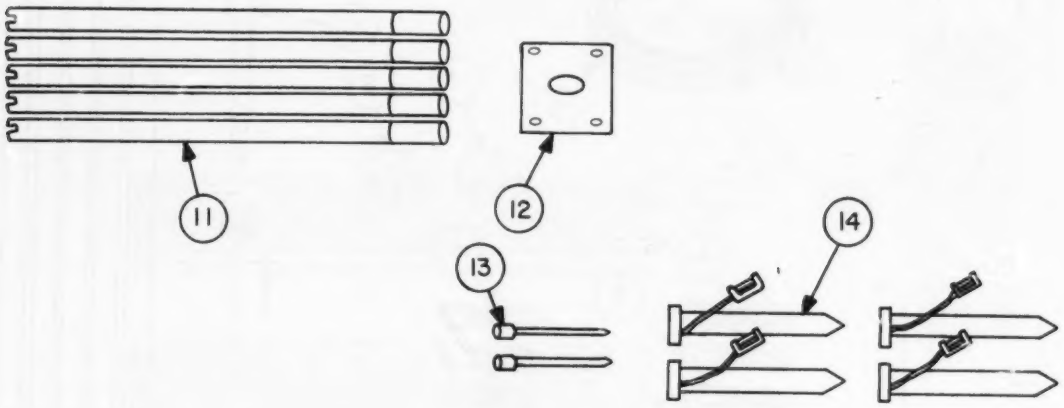
AB-1244/GRC



SECTION II COMPONENTS OF END ITEM - continued

(1) ILLUS NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION (FSCM) AND PART NUMBER	USABLE ON CODE	(4) U/M	(5) QTY REQD
		Mast AB-1244/GRC (80063) SM-D-866154 consists of:			
1	5985-01-072-8015	Adapter Assembly, Lower (80063) SM-D-659279	A	EA	1
2	5985-01-072-8016	Adapter Assembly, Upper (80063) SM-D-659286	A	EA	1
3	5995-01-085-1665	Cable Assembly, Radio Frequency (80058) CG-1889B/U (80 ft)	A	EA	1
4	5985-01-072-4496	Clamp, Electrical Conductor, Strain (80063) PF-211/G: SC-DL-14203	A	EA	1
5	5985-01-072-4414	Guy Assembly (80063) SC-D-659410-GP1	A	EA	4
6	5985-01-072-4415	Guy Assembly (80063) SC-D-659410-GP2	A	EA	4
7	4030-01-074-7881	Guy Plate (80063) SM-B-659290-1	A	EA	1
8	4030-01-072-8126	Guy Plate (80063) SM-B-659290-2	A	EA	1
9	5985-01-072-8018	Mast and Base Assembly (80063) SM-D-659263	A	EA	1
10	5985-01-072-8065	Mast Section Assembly, Lower (80063) SM-C-659276	A	EA	5

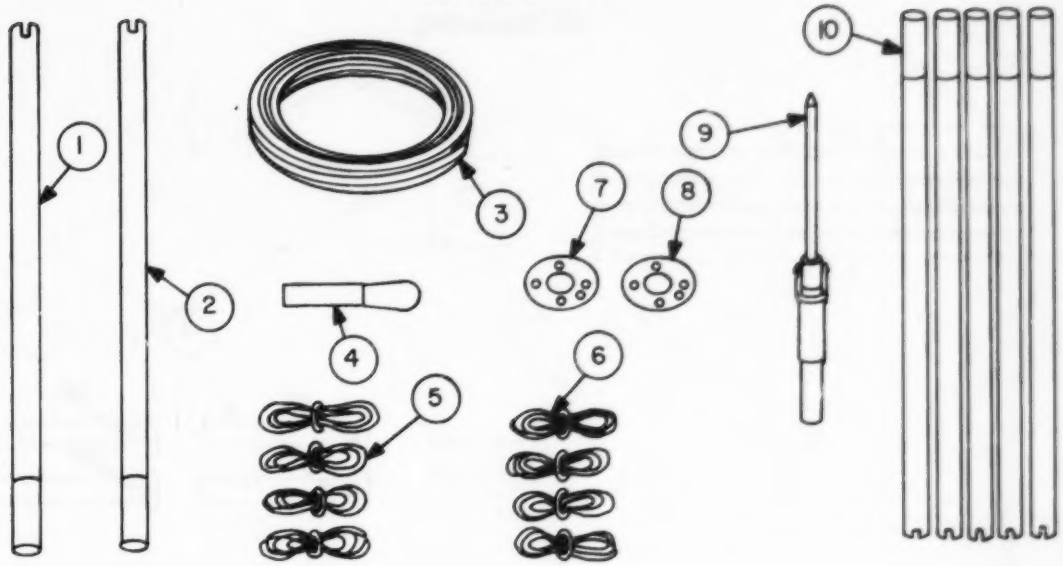
AB-1244/GRC



SECTION II COMPONENTS OF END ITEM - continued

(1) ILLUS NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION (FSCM) AND PART NUMBER	USABLE ON CODE	(4) U/M	(5) QTY REQD
11	5985-01-072-8066	Mast Section Assembly, Upper (80063) SM-C-659283	A	EA	5
12		Plate (80063) SM-B-659275	A	EA	1
13	4030-01-072-8017	Stake (80063) SC-B-729924	A	EA	2
14	5985-01-073-6103	Stake Assembly (80063) SM-C-659375	A	EA	4

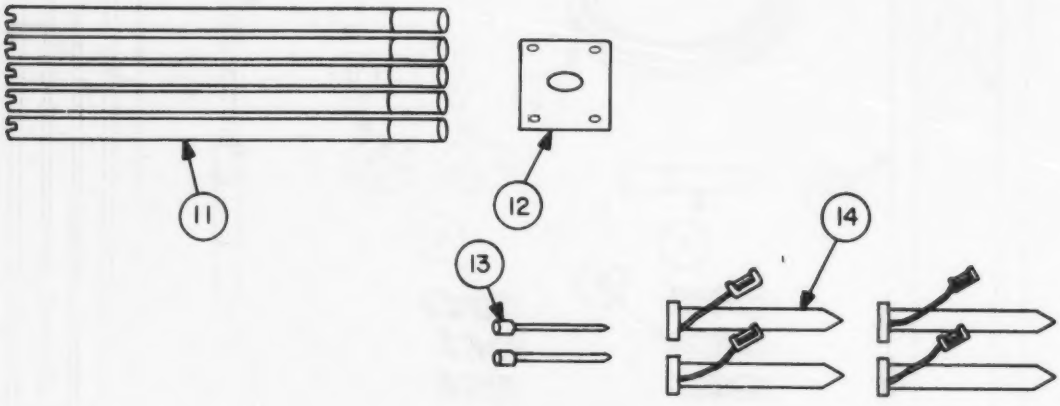
AB-1244A/GRC



SECTION II COMPONENTS OF END ITEM - continued

(1) ILLUS NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION (FSCM) AND PART NUMBER	USABLE ON CODE	(4) U/M	(5) QTY REQD
		Mast AB-1244A/GRC (80063) A3002867 consists of:			
1	5985-01-072-8015	Adapter Assembly, Lower (80063) SM-D-659279	B	EA	1
2	5985-01-072-8016	Adapter Assembly, Upper (80063) SM-D-659286	B	EA	1
3	5995-01-085-1665	Cable Assembly, Radio Frequency (80058) CG-1889B/U (80 ft)	B	EA	1
4	5975-01-072-4496	Clamp, Electrical, Conductor, Strain (80063) PF-211/G: SC-DL-14203	B	EA	1
5	5985-01-072-4414	Guy Assembly (80063) SM-D-659410-GP1	B	EA	4
6	5985-01-072-4415	Guy Assembly (80063) SM-D-659410-GP2	B	EA	4
7	4030-01-074-7881	Guy Plate (80063) SM-B-659290-1	B	EA	1
8	4030-01-072-8126	Guy Plate (80063) SM-B-659290-2	B	EA	1
9		Mast and Base Assembly (80063) A3002868	B	EA	1
10	5985-01-072-8065	Mast Section Assembly, Lower (80063) SM-C-659276	B	EA	5

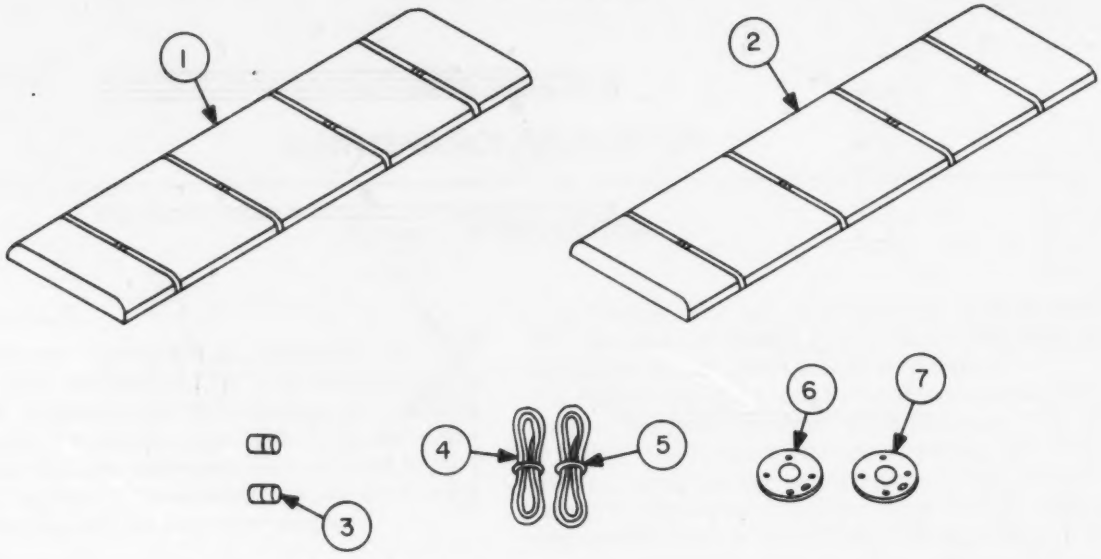
AB-1244A/GRC



SECTION II COMPONENTS OF END ITEM - continued

(1) ILLUS NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION (FSCM) AND PART NUMBER	USABLE ON CODE	(4) U/M	(5) QTY REQD
11	5985-01-072-8066	Mast Section Assembly, Upper (80063) SM-C-659283	B	EA	5
12		Plate (80063) A3002872	B	EA	1
13	3040-00-072-8017	Stake (80063) SC-B-729924	B	EA	2
14	5985-01-073-6103	Stake Assembly (80063) SM-C-659375	B	EA	4

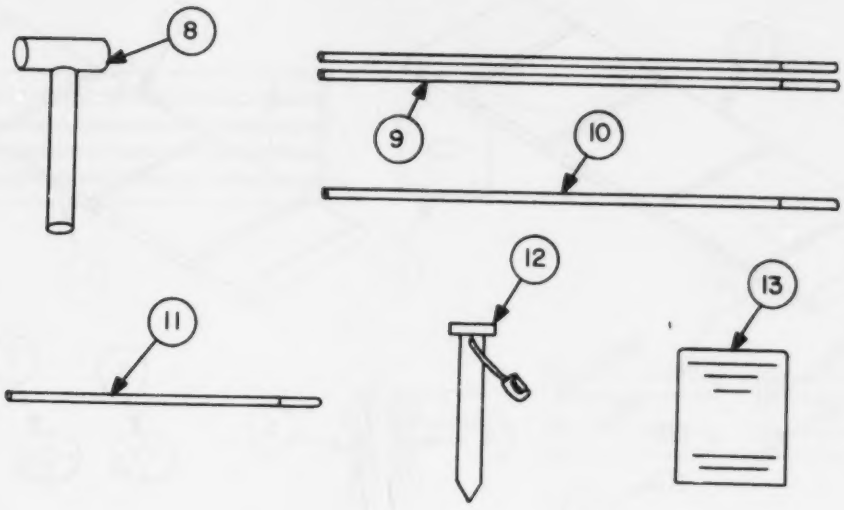
OE-254/GRC



SECTION III BASIC ISSUE ITEMS

(1) ILLUS NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION (FSCM) AND PART NUMBER	USABLE ON CODE	(4) U/M	(5) QTY REQD
1	5985-01-072-4339	Bag, Transit (80063) SM-D-944752	A	EA	1
2		Bag, Transit (80063)	B	EA	1
3	5935-00-732-1919	Connector, Adapter (80058) UG-349B/U	A,B	EA	2
4	5985-01-072-4414	*Guy Assembly (80063) SM-D-659410-GP1	A,B	EA	1
5	5985-01-072-4415	*Guy Assembly (80063) SM-D-659410-GP2	A,B	EA	1
6	4030-01-074-7881	*Guy Plate (80063) SM-B-659290-1	A,B	EA	1
7	4030-01-072-8126	Guy Plate (80063) SM-B-659290-2	A,B	EA	1
		* Running Spares			

OE-254/GRC



SECTION III BASIC ISSUE ITEMS - continued

(1) ILLUS NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION (FSCM) AND PART NUMBER	USABLE ON CODE	(4) U/M	(5) QTY REQD
8	5120-00-203-4656	Hammer Hand, 2-½ lb. (81348) Type X, Class I, GGG-H-86C	A,B	EA	1
9	5985-00-199-8831	*Mast Section MS-116A (80063) SCD12521MS116A	A,B	EA	2
10	5985-00-115-7149	*Mast Section MS-117A (80063) SCD12521MS117A	A,B	EA	1
11	5820-00-240-3720	*Mast Section AB-24/GR (80063) SCD13614 AB24GR	A,B	EA	1
12	5985-01-073-6103	*Stake Assembly (80063) SM-C-659375	A,B	EA	1
13		TECHNICAL MANUAL: TM 11-5985-357-13	A,B	EA	1
		* Running Spares			

APPENDIX D

MAINTENANCE ALLOCATION

Section I. INTRODUCTION

D-1. General.

This appendix provides a summary of the maintenance operations for OE-254/GRC. It authorizes categories of maintenance for specific maintenance functions on repairable items and components and the tools and equipment required to perform each function. This appendix may be used as an aid in planning maintenance operations.

D-2. Maintenance Function.

Maintenance functions will be limited to and defined as follows:

a. Inspect. To determine the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination.

b. Test. To verify serviceability and to detect incipient failure by measuring the mechanical or electrical characteristics of an item and comparing those characteristics with prescribed standards.

c. Service. Operations required periodically to keep an item in proper operating condition, i.e., to clean (decontaminate), to preserve, to drain, to paint, or to replenish fuel, lubricants, hydraulic fluids, or compressed air supplies.

d. Adjust. To maintain, within prescribed limits, by bringing into proper or exact position, or by setting the operating characteristics to the specified parameters.

e. Align. To adjust specified variable elements of an item to bring about optimum or desired performance.

f. Calibrate. To determine and cause corrections to be made or to be adjusted on instruments or test measuring and diagnostic equipments used in precision measurement. Consists of comparisons of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared.

g. Install. The act of emplacing, seating, or fixing into position an item, part, module (component or assembly) in a manner to allow the proper functioning of the equipment or system.

h. Replace. The act of substituting a serviceable like type part, subassembly, or module (component or assembly) for an unserviceable counterpart.

i. Repair. The application of maintenance services (inspect, test, service, adjust, align, calibrate, replace) or other maintenance actions (welding, grinding, riveting, straightening, facing, remachining, or resurfacing) to restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module (component or assembly), end item, or system.

j. Overhaul. That maintenance effort (service/action) necessary to restore an item to a completely serviceable/operational condition as prescribed by maintenance standards (i.e., DMWR) in appropriate technical publications. Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to like new condition.

k. Rebuild. Consists of those services/actions necessary for the restoration of unserviceable equipment to a like new condition in accordance with original manufacturing standards. Rebuild is the highest degree of materiel maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (hours, miles, etc.) considered in classifying Army equipments/components.

D-3. Column Entries.

a. Column 1, Group Number. Column 1 lists group numbers, the purpose of which is to identify components, assemblies, subassemblies, and modules with the next higher assembly.

b. Column 2, Component/Assembly. Column 2 contains the noun names of components, assemblies, subassemblies, and modules for which maintenance is authorized.

c. Column 3, Maintenance Functions. Column 3 lists the functions to be performed on the item listed in column 2. When items are listed without maintenance functions, it is solely for purpose of hav-

ing the group numbers in the MAC and RPSTL coincide.

d. Column 4, Maintenance Category. Column 4 specifies, by the listing of a "worktime" figure in the appropriate subcolumn(s), the lowest level of maintenance authorized to perform the function listed in column 3. This figure represents the active time required to perform that maintenance function at the indicated category of maintenance. If the number or complexity of the tasks within the listed maintenance function vary at different maintenance categories, appropriate "worktime" figures will be shown for each category. The number of task-hours specified by the "worktime" figure represents the average time required to restore an item (assembly, subassembly, component, module, end item or system) to a serviceable condition under typical field operating conditions. This time includes preparation time, troubleshooting time, and quality assurance/quality control time in addition to the time required to perform the specific tasks identified for the maintenance functions authorized in the maintenance allocation chart. Subcolumns of column 4 are as follows:

C – Operator/Crew
O – Organizational
F – Direct Support
H – General Support
D – Depot

e. Column 5, Tools and Equipment. Column 5 specifies by code those common tool sets (not individual tools) and special tools, test, and support equipment required to perform the designated function. The tools and equipment are listed in table 1.

f. Column 6, Remarks. Column 6 contains an alphabetic code which leads to the remark in section IV, Remarks, which is pertinent to the item opposite the particular code.

D–4. Tool and Test Equipment Requirements (Section III).

a. Tool and Test Equipment Reference Code. The numbers in this column coincide with the numbers used in the tools and equipment column of the MAC. The numbers indicate the applicable tool or test equipment for the maintenance functions.

b. Maintenance Category. The codes in this column indicate the maintenance category allocated the tool or test equipment.

c. Nomenclature. This column lists the noun name and nomenclature of the tools and test equipment required to perform the maintenance functions.

d. National/NATO Stock Number. This column lists the National/NATO stock number of the specific tool or test equipment.

e. Tool Number. This column lists the manufacturer's part number of the tool followed by the Federal Supply Code for manufacturers (5-digit) in parentheses.

D–5. Remarks (Sect. IV).

a. Reference Code. This code refers to the appropriate item in section II, column 6.

b. Remarks. This column provides the required explanatory information necessary to clarify items appearing in section II.

(Next printed page is D–3)

SECTION II MAINTENANCE ALLOCATION CHART FOR

ANTENNA GROUP OE-254/GRC

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS AND EQPT.	(6) REMARKS
			C	O	F	H	D		
00	ANTENNA GROUP OE-254/GRC	Test		0.1				4,5	
		Test			0.2			1	
		Replace		1.0				2	
		Repair		0.4				2	A
		Repair			0.5			3	
01	ANTENNA AS-3166/GRC	Test		0.1				4,5	
		Test			0.2			1	
		Replace		0.3				2	
		Repair		0.2				2	A
		Repair			0.2			3	
02	MAST AB-1244/GRC	Replace		0.3				2	
		Repair		0.2				2	A

SECTION III TOOL AND TEST EQUIPMENT REQUIREMENTS FOR

ANTENNA GROUP OE-254/GRC

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE CATEGORY	NOMENCLATURE	NATIONAL/NATO STOCK NUMBER	TOOL NUMBER
1	F	MULTIMETER TS-352B/U	6625-00-553-0142	
2	O	TOOL KIT, ELECTRONIC EQUIPMENT TK-101/G	5180-00-064-5178	
3	F	TOOL KIT, ELECTRONIC EQUIPMENT TK-100/G	5180-00-605-0079	
4	O	MULTIMETER AN/URM-105C	6625-00-999-6282	
5	O	TEST SET, RF AN/URM-182 OR TEST SET, RF AN/URM-182A	6625-00-062-3599 6625-01-148-9371	

SECTION IV. REMARKS

REFERENCE CODE	REMARKS
A	Repair is done by replacement.

APPENDIX E

EXPENDABLE SUPPLIES AND MATERIALS LIST

Section I. INTRODUCTION

E-1. Scope

This appendix lists expendable supplies and materials you will need to operate and maintain the OE-254/GRC. These items are authorized to you by CTA 50-970, Expendable Items (Except Medical, Class V, Repair Parts, and Heraldic Items).

E-2. Explanation of Columns

a. Column 1 — Item Number. This number is assigned to the entry in the listing and is referenced in the narrative instructions to identify the material (e.g., "Use cleaning compound, item 5, appx E").

b. Column 2 — Level. This column identifies the lowest level of maintenance that requires the listed item.

C — Operator/Crew
O — Organizational Maintenance
F — Direct Support Maintenance
H — General Support Maintenance

c. Column 3 — National Stock Number. This is the National stock number assigned to the item; use it to request or requisition the item.

d. Column 4 — Description. Indicates the Federal item name and, if required, a description to identify the item. The last line for each item indicates the part number followed by the Federal Supply Code for Manufacturer (FSCM) in parentheses, if applicable.

e. Column 5 — Unit of Measure (U/M). Indicates the measure used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, in, pr). If the unit of measure differs from the unit of issue, requisition the lowest unit of issue that will satisfy your requirements.

(Next printed page is E-2)

SECTION II EXPENDABLE SUPPLIES AND MATERIALS LIST

(1) ITEM NO.	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION PART NO. AND FSCM	(5) UNIT OF MEAS
1	C	5970-00-419-4291	ELECTRICAL TAPE	RL
2	C	6850-00-177-5094	SILICONE COMPOUND	TU
3	C	6850-00-105-3084	TRICHLOROTRIFLUOROETHANE MS180 FREON TF '18598)	OZ
4	O	8010-01-039-5939	PAINT, ALKYD, CAMOUFLAGE, FOREST GREEN MIL-E-52798	QT
5	O	9905-00-511-8751	WARNING LABEL (SB 11-614)	EA

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Commander
Stateside Army Depot
ATTN: AMSTA-US
Stateside, N.J. 07703

DATE SENT
10 July 1975

PUBLICATION NUMBER	PUBLICATION DATE	PUBLICATION TITLE
TM 11-5840-340-12	23 Jan 74	Radar Set AN/PRC-76

BE EXACT. . . PIN-POINT WHERE IT IS

PAGE NO	PARA-GRAPH	FIGURE NO	TABLE NO
2-25	2-28		
3-10	3-3		3-1
5-6	5-8		
		F03	

IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:

Recommend that the installation antenna alignment procedure be changed throughout to specify a 2° IFF antenna lag rather than 1°.

REASON: Experience has shown that with only a 1° lag, the antenna servo system is too sensitive to wind gusting in excess of 25 knots, and has a tendency to rapidly accelerate and decelerate as it hunts, causing strain to the drive train. Hunting is minimized by adjusting the lag to 2° without degradation of operation.

Item 5, Function column. Change "2 db" to "3db."

REASON: The adjustment procedure the the TRANS POWER FAULT indicator calls for a 3 db (500 watts) adjustment to light the TRANS POWER FAULT indicator.

Add new step f.1 to read, "Replace cover plate removed in step e.1, above."

REASON: To replace the cover plate.

Zone C 3. On J1-2, change "+24 VDC to "+5 VDC."

REASON: This is the output line of the 5 VDC power supply. +24 VDC is the input voltage.

SAMPLE

PRINTED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER
SSG I. M. DeSpiritof 999-1776

SIGN HERE
I. M. DeSpiritof

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SAAD (30)
TOAD (14
SHAD (3)
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Sig Sec USA Dep (1)
Units org under fol TOE:
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29-207
29-610

ARNG & USAR: None

For explanation of abbreviations used, see AR 310-50.